

THE SCHOOL REVIEW

A JOURNAL OF SECONDARY EDUCATION

VOLUME XLVII * NOVEMBER 1939 * NUMBER 9

Educational News and Editorial Comment

*

THE PROPOSED PLAN OF REORGANIZATION FOR ST. LOUIS

AT HAND is *A Report of a Survey of the Public Schools of St. Louis, Missouri*, made by the Division of Field Studies of the Institute of Educational Research at Teachers College, Columbia University, of which Professors George D. Strayer and N. L. Engelhardt are, respectively, director and associate director. The survey, which appears to have been comprehensive in its scope, was made during the past school year. Many aspects of the report would prove interesting to our readers, but particular attention is directed here to the sections bearing on the problem of the organization of schools in the system. From the chapter on "The Administration of the School System," we quote in full the section which is called "Possible Reorganization of the School System."

St. Louis follows the typical plan of public-school systems in the United States in its provision of a kindergarten, an eight-year elementary school, and a four-year high school. It conforms as well to a movement that is gaining favor throughout the United States in its provision of a two-year junior college.

This traditional plan of organization is being modified in many localities. A conception of the common school system is being developed which offers education for young people from the nursery school through the junior college. As this more extended program is developed, there is a well-defined tendency to reorganize the school system into three major units. The first includes the nursery school, the kindergarten, and the first six years of the common school program, enrolling children to approximately twelve years of age. The second unit

consists of a four-year program of continued general education which may be completed at approximately sixteen years of age. The third unit consists of a four-year program of continued general education for those who are later to enter higher educational institutions or a program of vocational courses which may be terminated at eighteen, nineteen, or twenty years of age.

The educational plan sketched above can, of course, be carried out in a great variety of organization types. There is virtue, however, in differentiating schools so as to provide for the completion of the first unit of work at twelve to thirteen years of age, and in having this first unit followed by two substantial units of four years each. There is justifiable condemnation of the hiatus which often exists between the work of the three-year junior and the three-year senior high school, and between the high school and the junior college. It is desirable, as well, to organize schools to include a sufficiently long period to make it possible to develop the corporate life of the school. Administrative conditions also make it desirable to organize schools in three major units. There must be many more of the elementary than of the higher school units since travel distance becomes less important as children grow older.

It is desirable that the professional staff of the St. Louis public schools explore the possibility of reorganization along the lines indicated above. As the elementary-school population decreases, it may become possible to use certain of the elementary-school plants for the intermediate schools (the second unit named above), or it may be possible to utilize space that is vacated in certain elementary-school centers with such additions to buildings as are required to accommodate the program of the intermediate school. The problem of housing the proposed upper four-year unit would not be difficult to meet since, if such a reorganization as has been suggested were to be brought about, the high-school buildings now in use would amply accommodate this upper division of the school system.

In proposing the above plan the survey staff does not desire to indicate any unusual confidence in mere reorganization. The thought is rather that, through the segregation of children and of the professional staff, a significant contribution might be made in the development of curriculums and teaching for children above twelve years of age. One of the very great difficulties existing in the present organization is the lack in the elementary-school buildings of equipment in libraries, music and art rooms, shops and laboratories, gymnasiums and auditoriums suitable for the use of children above twelve years of age. It is even true that in many buildings where the spaces named above are provided they are quite inadequate to house the kind of program which is needed. There are notable deficiencies in the gymnasiums and auditoriums found in the elementary-school buildings. In most cases the library facilities provided are quite inadequate for children above the sixth grade. In only a very few elementary schools are the laboratories and shops of a character suitable for the work of children of this intermediate-school group.

Members of the survey staff strongly recommend that the whole field of reorganization be studied during the next two or three years. This study should

take account of the present plant and the possibilities of future plant development; it should consider the reorganization of curriculums and improvement in instruction as suggested in other sections of this report; and it should ultimately lead to such reassignment and reconstruction of the school plant as may be necessary to house adequately the best program of education that can be developed by the professional staff of the school system.

In a subsequent chapter on school-building problems a section called "The Future School Building Program" proposes the plant to accommodate the plan of organization recommended. Maps of the city indicate desirable locations for the buildings of the system, including the four-year "middle schools" and the four-year terminal units housing the last two high-school and the two junior-college years.

There must be significance for the increasing acceptance of this proposed plan in the fact that the two largest cities in Missouri, on opposite sides of the state, have recently had recommended for them organizations which, even though not quite identical, are functionally similar. The *School Review* in a late spring issue abstracted and commented on a report by a citizens' committee of the Kansas City school district which "suggested" for that system a six-three-four plan, the middle unit to consist of three instead of four grades. The difference in proposals for the two cities is explained by the fact that Kansas City over a long period has operated an eleven-grade system including seven-year elementary schools and four-year high schools.

While commenting on these developments in Missouri's two largest cities, we should not ignore the earlier committals along similar lines in smaller cities of the state. In point of fact, Moberly has for a number of years operated its schools on a seven-three-four basis and was the first system in the Middle West to effect the new reorganization. Also, Jefferson City, Missouri's capital, has for at least two years been officially committed to the six-four-four plan and has, through new construction, been rearranging its school structures in anticipation of shifting to that plan.

IN THE CIRCUMSTANCES, ALMOST A FORLORN HOPE

A RECENTLY published bulletin on *The Recognition and Accrediting of Illinois Secondary Schools* (prepared by the state superintendent of public instruction of Illinois and the University of Illi-

nois) contains the following statement on the subject of "Articulation."

One of the most outstanding deficiencies in Illinois education is the lack of articulation of the work in the elementary grades with the work of the high schools. In view of this condition, it will be the policy of the office of the superintendent of public instruction to encourage efforts on the part of school administrators to dovetail the work of the elementary grades into the work of the high schools. This may be accomplished through (1) frequent conferences of elementary- and high-school teachers and administrators, and (2) by combining the seventh and eighth grades with the high school wherever possible. In the latter arrangement care should be taken to see that the college preparation of all teachers is in accord with the recommendation pertaining to teacher preparation. . . .

As the reader may note, this brief statement both admits a serious deficiency and suggests remedial measures. The compilers of the bulletin do not go out of their way to name the origin of the deficiency, namely, the system of township and community high school districts, which makes most of the elementary schools and the high schools of the state autonomous with respect to each other and which discourages junior high school reorganization. It has long been known that Illinois lags far behind most states in the proportion of its secondary schools that are operated on the reorganized basis. To be sure, several admirable instances of co-operation and articulation can be cited in autonomous districts (that is, districts not including elementary and secondary schools under the same control), but each such instance can be matched by large numbers of situations in which jealousy, conflict, and lack of articulation are characteristic. The basic remedy would be the unit district.

This comment is not intended to reflect on the merit of the bulletin, which in many ways takes forward steps in procedures of accreditation and recognition.

ON THE SIMPLIFICATION OF TEACHING COMBINATIONS

OVER a period of more than two decades studies have been made of combinations of subjects taught by high-school teachers, and these investigations have given rise to recommendations looking to the amelioration of the chaos of combinations always found in such studies. The latest and one of the most exhaustive of these studies

has been made by Professor Edward F. Potthoff, of the University of Illinois. Professor Potthoff's report of his study has been published as a bulletin of that institution (Volume XXXVI, Number 87) under the title *Simplifying the Combinations of Subjects Assigned to High School Teachers—A Way to Improved Instruction in the High Schools of Illinois*. The bulletin does not stop with reporting conditions but, as its title implies, goes on to propose ways out of the confusion toward teachable programs. We quote in full the author's conclusions concerning the possibilities and means of simplification.

Probably the most significant conclusion to be drawn from this study is that teaching combinations can be simplified and with numerous distinct advantages. In other words, the chaos which now characterizes conditions with respect to combinations need not continue to exist indefinitely if only we are determined to take the proper steps to remedy the situation. How to bring about in actual practice the improvement which this report has so conclusively shown to be possible is another problem, but at least a brief reference may be made to it here.

The wholesale transformation of teaching combinations cannot be effected overnight. The state accrediting agencies, in co-operation with high-school principals and representatives of teacher-training institutions, should outline a state-wide program in which a period of, let us say, three to five years is set aside to accomplish the necessary changes. Teachers who are not now prepared in a combination that will be included in any simplified system that may be set up must be allowed sufficient time either to secure additional preparation or to obtain positions which require them to teach only in their major fields of specialization. The program for effecting the change should of course include the setting-up of a simplified list of combinations, together with standards for the preparation of teachers in each major and minor subject included therein. Finally, these undertakings might well be accompanied by an attempt to effect some degree of standardization and of enrichment of high-school programs of studies.

Every high-school principal should attempt to determine what particular combinations from the total list will best serve the needs, present and future, of his own school system, and he should make plans to obtain a staff of teachers who will be prepared accordingly by the time designated in the state-wide program.

The state accrediting agencies should make such provisions as are necessary to insure adherence to the simplified system of combinations and to effect such modifications in this system as may from time to time be found to be desirable. Not only should the combinations assigned to teachers be restricted to the standard list, however, but provision should be made also to insure that every teacher is assigned the major portion of her teaching load in that field which represents

her major preparation. It should be noted that, if these two things were done, the certification of teachers by subjects would not be necessary.

Finally, the teacher-training institutions should co-operate (1) by permitting prospective teachers to select only combinations which are included in the standard list, and (2) by making available the courses necessary to provide a comprehensive general education on the one hand and adequate and appropriate preparation in each combination which students are allowed to select on the other hand. The subject-matter preparation of high-school teachers represents a very important aspect of the whole problem since the present offerings of higher institutions are by no means entirely satisfactory for this purpose.

The benefits which could accrue once such a program of simplified combinations has been put into effect can hardly be overestimated. Many principals have indicated to the writer that they would welcome such a change. Many teachers would respond in the same manner once they realized that the change would open up many more, and much better, positions than are now available to them. And, finally, the higher institutions would also be favorable to the change when once it was realized that the greatly improved instruction which it would bring in high-school subjects should eventually result in a much better prepared group of Freshmen presenting themselves for education in our colleges and universities. The principal question is whether or not our determination to secure the many possible advantages is equal to the challenge.

Facing the typical organization of the curriculum in the high schools of Illinois and aiming at early improvement of instructional conditions for that curriculum, the bulletin does not make much of the possibilities of simplification through the recent trends toward general, or survey, courses in the schools and the modification of subject boundaries as a result of functional organization of the curriculum. The continuance of these trends should accomplish a great deal toward simplification of teachers' assignments when they come to be recognized by teacher-training institutions.

A COMMENDABLE USE FOR THE AGRICULTURAL SURPLUS

THE following news release has been received from the federal Department of Agriculture. As compared with the destruction of surplus commodities by public and private agencies at a time when many persons, including children, are in want, the policy reflected in the plan is highly commendable.

Expansion of the Federal Surplus Commodities Corporation's school-lunch program was announced today by the United States Department of Agriculture. Officials said they hoped the school-lunch program would be serving five million

undernourished children by the end of the coming school year. They also pointed out that the school-lunch program would provide additional outlets for agricultural surpluses.

The school-lunch program is carried out by the F.S.C.C. in co-operation with the Work Projects Administration and local educational civic and welfare agencies. Surplus agricultural commodities, bought by the F.S.C.C., are made available through state welfare agencies to supply all or part of the food used in serving free hot lunches for school children.

Each month during the past school year eight hundred thousand children in more than fourteen thousand schools located in low-income areas received lunches made possible in whole or in part by the donation of surplus agricultural commodities. Schools in every state in the Union, as well as in Puerto Rico and the Virgin Islands, participated in the free-lunch program.

Fifty-four different food commodities, totaling more than thirty million pounds, were distributed last year for use in these school lunches. Citrus fruits, dry skim milk and evaporated milk, whole-grain cereals and flours, butter, eggs, and many other foods which are regarded as especially beneficial for growing children were included among the commodities distributed.

Under plans for expanding the program, officials of the F.S.C.C. are working toward co-operative agreements which would make the school lunches available for up to five million children. Officials of the F.S.C.C. point out that this increased outlet for farm surpluses will be of direct benefit to agricultural producers. School and public-health officials report that utilization of the surpluses in the school lunches results in better health, with improved attendance and scholarship records, for the undernourished children who get the free lunches.

Farm organizations, educational groups, and child-welfare and health departments throughout the country are co-operating with the F.S.C.C. in the plans for expansion of the school-lunch program.

AN INVENTORY OF FEDERAL ACTIVITIES IN EDUCATION

THE latest publication sponsored by the Educational Policies Commission of the National Education Association and the American Association of School Administrators is *Federal Activities in Education*. It is a paper-bound monograph of about 150 pages prepared for the commission by Lloyd E. Blauch, who brought to the task extended experience in several federal educational agencies.

The scope both of the monograph and of federal activities is suggested by the chapter titles, which, following the Introduction, are: "The Land-Grant Colleges and Universities," "Occupational Training, Placement, and Rehabilitation," "Child Health and Welfare

Activities Related to Education," "Education for National Defense," "Emergency Education Activities," "The United States Office of Education," "Special Conferences and Committees," and "Miscellaneous Educational Activities." The chapters go into some detail in describing the various types of activities under each of these main headings. For example, the chapter on "Occupational Training, Placement, and Rehabilitation" contains sections on nautical education, vocational education, apprenticeship service, aviation education, employment service, and vocational rehabilitation of the physically disabled.

The publication is put forward as emphasizing current conditions "with no attempt at this point to offer further recommendations with reference to policy or procedure." It "is not a complete review of the multitudinous activities of federal agencies in education, but it is believed that it does cover those of greatest importance to the conduct of education in the states and local communities." Copies of this descriptive publication may be purchased for fifty cents of the National Education Association in Washington, D.C.

HERE AND THERE AMONG THE HIGH SCHOOLS

FOUR items of practice, in the nature of innovations in the school situations from which they were reported, are described here. Three of these bear most heavily on guidance, and the remaining item has to do with occupational training for business. The school situations represented are in the Midwest, the East, and the South.

Another course in orientation in the ninth grade From the high school at Imlay City, Michigan, of which A. G. Amundsen is principal, has come the outline of a course in "Social Problems"—an orientation course the purpose of which is "to provide guidance in education, social adjustment, vocations, and community understanding." The outline lists the "methods" used in the course. For example, the methods for the portion of the course concerned with educational guidance are "a testing and counseling program," "a study of the history of the development of secondary schools in the United States," "a study of the traditions and philosophy of the local school," "a study of the

regulations of the local school," "experiments in study habits and schedules," "personal counseling on problems growing out of school experiences," "experience in socialized class activities," and "group and individual guidance in choosing a program of studies [curriculum] for the remainder of high-school experience."

Pupil orientation covering entire six-year period

Judged from the mimeographed outline supplied, the program of orientation in the secondary schools of Erie, Pennsylvania, of which C. Herman Grose is superintendent, is more comprehensive than that just described since it extends through all six grades of the secondary-school period as administered in that city. The outline of the program, called *Information, Please!* is reproduced in two parts, one for Grades VII-IX and the other for Grades X-XII. The "broad objectives" of the six semesters represented in Part I are, successively, "orientation," "opportunities of junior high school," "school citizenship," "community citizenship," "personal guidance," and "vocational guidance." For the corresponding semesters of the senior high school period, the objectives are "selecting courses for long-range program," "moral and ethical guidance," "personality," "socio-economic guidance," "vocations," and "vocational citizenship." The outline is administered through home rooms. A limited number of the outlines are available and may be secured from Superintendent Grose at one dollar for each part.

Compiling information about local employment

A feature of the guidance program in the secondary schools of Knoxville, Tennessee, of which Harry Clark is superintendent, is the compilation of information concerning local occupational opportunities for high-school graduates. The compilation is made from reports on a request form signed by the superintendent and by Curtis Gentry, director of guidance, which is sent to a hundred of the largest and most representative business and industrial firms of the city. Respondents are requested also to check in a long list the subjects especially useful in their work. It is the opinion in the system that boys and girls can be more efficiently served with data at hand of the types compiled from the form.

A "student shop" providing business experience

The high school at Greenwich, Connecticut, of which George E. Shattuck is principal, maintains a "student shop" to aid in teaching pupils the arts of salesmanship. The following exposition of the project appeared in the *New York Times*.

The Greenwich High School salesmanship and retail-selling classes have recently opened a retail store called the Student Shop. At the present time it is being operated as a grocery store, open from 8 A.M. to 3 P.M.

The personnel is picked from the salesmanship, retail-selling, bookkeeping and office-practice classes of the commercial department. All told, twenty-four students serve on the store staff during various periods of the day. The staff consists of a manager, assistant manager, sales-promotion manager, sales clerks, bookkeeping staff, and office girls, who are employed during their study periods so as not to interfere with the rest of their school work.

The store has a colonial-type front which is cleverly built into the wall. The designing and part of its construction was done by students in the manual-arts department. The floor and counters are inlaid with linoleum. The shelving and counters, all adjustable, are finished off in a walnut stain. The windows have Venetian blinds.

A six-drawer cash register, electrically operated refrigerator, scales, coffee mill, adding machine, and sales-slip machine are included in the equipment, and have been contributed or loaned by either local or national concerns.

The merchandise is sold to the 1,700 students, teachers, and any near-by customers who drop in. It is furnished by any local grocer who wishes to put his goods into the shop. All merchandise is accepted at retail, and the full retail price goes to the contributor. At present twelve dealers, including two chains and one neighborhood grocer, have their merchandise on display.

The store maintains a delivery service on any order over two dollars and also runs a telephone service, which functions continually.

The shop is averaging about \$100 a week and is showing a continual increase. It will run to the middle of June, and reopen in September as a boys' and girls' clothing shop. During December a gift shop will be sponsored. Under each type of store all merchandise will be furnished by local concerns.

This is the second co-operative adventure the salesmanship and retail-selling classes of Greenwich High School have had. During the first week of May they completed the third annual merchandising fair, at which there was an attendance of 6,200 people during three evenings.

CULTURAL ENTERTAINMENT FOR YOUNG PEOPLE

JUNIOR Programs, Incorporated, is a noncommercial organization of recent origin planned to bring to children of elementary-school and high-school ages cultural entertainment at nomi-

nal cost ("averaging ten to twenty-five cents"). This service, previously available only in the eastern half of the United States and Canada, is during the current year being extended westward to the Pacific Coast. Nearly three hundred communities have scheduled performances for the current school year. The programs include symphony concerts, opera, ballet, drama, and other performances of high professional caliber. For example, the orchestras that have scheduled performances for the year are those of Cincinnati, Rochester, Cleveland, and Washington. The schools are supplied with correlated materials consisting of stories for various age levels, sheet music, bibliographies, lists of phonograph records, directions for games and dances, and suggestions for projects of many kinds. Productions offered by Junior Programs are selected and approved by an Educational Guidance Committee made up of well-known educators and persons prominent in the arts represented. The address of Junior Programs, Incorporated, is 37 West Fifty-seventh Street, New York City.

USEFUL PUBLICATIONS IN PAPER COVERS

AMONG the publications in paper covers which have recently appeared are several deserving special mention. Five of these are noted in the following paragraphs.

Conference proceedings *Next Steps in Consumer Education* is the name given to the 190-page book growing out of the proceedings of the National Conference Institute for Consumer Education which was held in early April at Stephens College, Columbia, Missouri. The book is designated as Bulletin Number 1 of the Institute for Consumer Education, the sponsor of the conference. Its scope is suggested by the subjects of the six sessions of the conference, which were addressed by leaders in consumer education and related areas: "The Challenge of Consumer Problems," "How Far Can Education Solve Consumer Problems?" "Choosing, Using, and Improving Materials in the Field," "Meeting the Needs of Particular Consumer Groups," "How Is Consumer Education Related to Other Subjects?" and

"Interrelations of Consumer Education and Marketing." Numerous addresses and portions of the reported discussion will be helpful to teachers of courses in consumer education, sometimes for suggestions of content of courses but more often for point of view.

Classroom broadcast receivers and phonographs The Committee on Scientific Aids to Learning (of the National Research Council) has sponsored a compact bulletin entitled *Broadcast Receivers and Phonographs for Classroom Use*. The publication contains, in addition to sections dealing especially with broadcast receivers and phonographs, discussions of quality of reproduction, equipment for the rural school, underlying engineering considerations, and improvement of classroom acoustics. An appendix reports a study of equipment available in 1939. Convenience of reference to the content is increased by a page of citations in the bulletin to points where important recurrent questions are answered, such as: "What factors influence quality?" "Are the new portable sets likely to be satisfactory for classroom use?" The address of the committee is 41 East Forty-second Street, New York City.

A practical manual for use in planning forums The outcomes of experience with, and demonstration of, forums extending over a period of years have been distilled in the *Forum Planning Handbook* published by the American Association for Adult Education in co-operation with the United States Office of Education. Authorship is credited to Commissioner of Education John W. Studebaker and Chester S. Williams, who are, respectively, administrator and assistant administrator of the Federal Forum Demonstrations. The *Handbook* is addressed to professional educational administrators, school-board members, and civic leaders. Chapter headings are "What Lies behind This Handbook," "Steps in Local Forum Planning," "Small Communities Pool Resources," "Planning for Cities and Their Suburbs," "State and Federal Aid for Forums," "Counting the Costs," and "The Questions before Us." Copies may be obtained through the Federal Forum Demonstrations in Washington, D.C.

Occupational trends in a second commonwealth The October *School Review* noted certain reports of investigations of occupational trends in Iowa. At hand at this writing is a bulletin of the California State Department of Education (Number 7, 1939) which deals with *Occupational Trends and Their Implications for Vocational Education* in that state. This particular bulletin reports trends in service occupations—"personal, business, and repair." It is reassuring to see the emphasis on inquiry into occupational trends, for information of the type reported is indispensable both for projecting programs of vocational education and for administering effective vocational guidance.

Materials for guidance on teaching as a career A recent addition to the series of monographs on occupations being published by the Science Research Associates is *Teaching as a Career* (Occupational Monograph 5). The informative text is by Cyril O. Houle, and interesting illustrations have been provided by E. A. Morrow, Jr. In the Foreword the author says the monograph is intended for two sorts of readers: "those who are considering teaching as a possible career . . . and those who, having already decided to go into teaching, would like to have more information about necessary qualifications, chances for advancement, and fields in which opportunities seem best." The monograph contains about fifty pages and sells for fifty cents. Copies may be secured of the publishers at 600 South Michigan Avenue, Chicago, Illinois. Earlier numbers of the series are *Opportunities for Statistical Workers*, *Employment in Land Transportation*, *Careers in Consumer Co-operation*, and *Jobs in Rural Journalism*.

WHO'S WHO FOR NOVEMBER

The authors of articles in the current issue L. G. OSBORN, principal of Rock Junior High School, East St. Louis, Illinois.
ELLEN FROGNER, teacher in the English department at Chicago Teachers College. GEORGE W. NORVELL, supervisor of English in the New York State Education Department, Albany, New York. KENT PEASE, professor in the English department and principal of the Academy at Western Illinois State Teach-

ers College, Macomb, Illinois. REID E. JACKSON, professor of education at West Virginia State College, Institute, West Virginia. GLENN M. BLAIR, associate in educational psychology at the University of Illinois. MAX R. GOODSON, principal of the University High School of the University of Illinois. GRAYSON N. KEFAUVER, dean of the School of Education at Stanford University. AUBREY E. HAAN, graduate student at Stanford University.

The writers of reviews in the current issue A. J. BRUMBAUGH, professor of education, dean of students in the College, and dean of the College at the University of Chicago. A. H. TURNEY, associate professor of education at the University of Kansas. NELSON B. HENRY, associate professor of education at the University of Chicago. R. R. RYDER, associate professor of education at Purdue University. W. FRANCIS ENGLISH, principal of Carrollton High School, Carrollton, Missouri. JULIAN C. ALDRICH, teacher of social studies and director of guidance at Webster Groves High School, Webster Groves, Missouri.

WHAT SHALL WE DO WITH THE N.Y.A. IN THE HIGH SCHOOL?

L. G. OSBORN

Rock Junior High School, East St. Louis, Illinois

★

AN UNWELCOME FOUNDLING

ALTHOUGH the National Youth Administration in its present form is fundamentally a relief agency, it must also be recognized as an aggressive attack on the American youth problem, of which most of us are keenly aware. Coming on suddenly, as it did, the N.Y.A. program in the high school received in many cases all the welcome of a foundling. It was placed on the school doorstep unasked for, and too frequently it was unwelcome. Many high-school principals and superintendents considered it merely another chore which took up time, required a great deal of effort, and yielded few returns. Those who held to this point of view gave to the program as little time and effort as possible. Little thought was given to the worth-whileness of the work assigned to boys and girls, the main consideration being that they put in enough hours to entitle them to a maximum of six dollars a month even though the time was used on "made work." There are even some grounds for belief that there may have been instances where the pay rolls were made out with little regard for the amount of time actually spent in work by individual pupils. Some believed that pupils should not have to work since the plan was a relief measure, that the relief should be given outright. There are doubtless some who still hold to this point of view.

THE PROGRAM COMMENDED

The N.Y.A. program has been operating for four years. The President's Advisory Committee on Education has recommended the continuance of the plan, with certain qualifications. The committee reported as follows:

The committee believes that the existing student-aid program has achieved values that should be preserved. It has provided a fundamental attack upon the problem of inequality of educational opportunity, and it has demonstrated that financial assistance, at least in the upper student age levels, can be granted on a work basis with very great advantages to all, including the students themselves. . . .

The recommendation is therefore made that the student-aid program be continued. It should not be made permanent until after further experience. . . .

The committee believes that aid should be continued for needy high-school pupils sixteen and seventeen years of age, but has some doubt as to the wisdom of requiring such aid to be on a work basis. For the present the best solution appears to be to give the administrative agency freedom to experiment with high-school aid both on a work and on a non-work basis until a sound, general policy can be determined.¹

Thus there are two issues which must be faced: (1) Shall the N.Y.A. program be made permanent? (2) If so, shall it be on a work basis, a non-work basis, or both? That high-school administrators, who have the responsibility of carrying out the program, will decide these issues seems inevitable.

THE FIRST ISSUE

Regarding the first issue, a brief survey of the values to be derived should suffice to convince the most skeptical that the program should be made permanent. The first challenge regarding the worth of the N.Y.A. program comes from those who say that six dollars a month or a maximum of fifty-four dollars a year is not sufficient to give any appreciable help.

Figures released by the N.Y.A. authorities show that 71 per cent of the high-school pupils on the N.Y.A. come from families having incomes of less than nine hundred dollars a year and that 30 per cent of these families have incomes of four hundred dollars a year or less.² There can be little doubt that in the majority of cases in these income brackets, then, the income from the N.Y.A. is an effective increment to the family budget and does prevent many, if not all, of those receiving it from leaving school. On this basis Americans who

¹ Advisory Committee on Education, *Report of the Committee*, pp. 102-3. Washington: Government Printing Office, 1938.

² "The School Aid Program of the National Youth Administration," *School and Society*, XLVIII (October 1, 1938), 425-26.

believe in the efficacy of the public schools should want to have it made permanent.

Another value derived from the N.Y.A. program may be credited to the cause of equalization of educational opportunity. Practically all school men subscribe to the theory of equalization of opportunity but think of it as a problem of equalizing opportunities between communities or political organizations. The N.Y.A. goes deeper in helping to equalize the educational opportunities of children from different families by enabling the less favored to take advantage of the educational facilities which are already available for them. Many states are appropriating millions to equalize the facilities for secondary education but appropriate nothing, directly at least, to equalize the opportunities for taking advantage of these facilities. The N.Y.A. program accomplishes this purpose.

Another value which can be ascribed to the high-school N.Y.A. program is its contribution to the solution of the youth problem. Besides enabling young persons to stay in school who might otherwise drop out, it may be made to prolong the time spent in school. This result is considered desirable by many who have studied the youth problem. One of the means for prolonging school attendance most frequently suggested by members of the American Youth Commission is part-time employment, which, however, is thought of only as something to be secured through the co-operation of industry. The N.Y.A. provides part-time employment, although as yet it receives little recognition for this service. That it has not received such recognition is evidenced by the fact that N.Y.A. pupils are permitted, without question, to carry a full load of four subjects in addition to their work. Since twenty clock hours is probably the average number of hours a month that a pupil must work, it is the time equivalent of a fifth subject. The North Central Association has a firmly established policy regarding the carrying of more than four subjects, but as yet it has, apparently, taken no recognition of the added load arising from N.Y.A. work.

Consideration should be given to N.Y.A. work as the time equivalent of a fifth subject and to the desirability of applying the same standards as those for carrying five subjects. On this basis most N.Y.A. pupils would require an extra semester or year to complete

a high-school course. In itself, this added school attendance would be of help toward solving the youth problem, especially in the case of those unable to go to college. That the latter group would be greatly in the majority can hardly be doubted. It is equally obvious that whatever preparation for civic, economic, and vocational efficiency this group of pupils is to receive from the public schools of the nation must be obtained before the close of their high-school training.

Another value which has scarcely been tapped may be derived from the N.Y.A. program. This value lies in the field of vocational exploration and guidance. Vocational guidance in the public schools has, of necessity, been approached almost entirely from the theoretical side. Only in those schools where there was an opportunity for part-time work under the supervision of the guidance department could real practice in vocational education be given. Any study of occupations, proper business relationships, and the like, however meritorious, is seriously handicapped unless it can be connected with actual experience. The N.Y.A. gives boys and girls real jobs on a part-time basis. At the same time it places the entire supervision and direction of their jobs in the hands of school authorities. They can hire and fire or suspend from work, with all the authority of executives in charge in industry. In addition, school authorities can assign work and supervise workers and are in full charge of their education. Here is an opportunity, first of all, for sampling many occupations and occupational work types. Any school of a thousand pupils or more has innumerable opportunities for vocational experiences. Working in the chemistry laboratory; assisting teachers; giving janitorial service; binding books; working in the library; participating in musical activities; doing clerical work; filing; working in the cafeteria; acting as assistants to matrons; acting as patrol officers; setting up projects in all departments; making posters, signs, and advertising material; helping in school publications; maintaining furniture; constructing stage scenery; taking care of athletic equipment; caring for lawns, trees, and shrubs—these are some of the ninety-three activities listed in the Illinois report blank for 1938-39 which furnish real jobs—jobs which in many instances are, of necessity, neglected because of the press of other business.

Another value which may be derived from the N.Y.A. program is training in what the writer chooses to call "vocational readiness." It is entirely possible for boys and girls who are educationally competent to be so totally unprepared for what is expected of them that they fail to make good in a job. The N.Y.A. program makes possible training in this type of vocational readiness. If N.Y.A. pupils are trained to understand that the first requirements for making good in any job are dependability and trustworthiness, if they are made to realize the importance of proper relationships and attitudes toward fellow-workers and those in positions of responsibility above them, if they are taught how to "fit in" in whatever situations they may find themselves, then they will have acquired a good measure of vocational readiness.

The writer is the principal of a junior high school of 750 pupils. In 1938-39 thirty-one boys and girls were on the N.Y.A. pay roll. When it is realized that pupils must be sixteen years of age before becoming eligible for N.Y.A. work and that all thirty-one boys and girls were in Grades VIII and IX and were therefore retarded pupils, it can readily be seen that they might have been more of a problem than an asset. A carefully supervised N.Y.A. program can be made to provide valuable training for these pupils with a degree of motivation seldom found possible in the ordinary courses in a high-school curriculum. The principal met these pupils approximately once a month for a half-hour conference. In these conferences a number of items were discussed, such as, "What are the factors which enable a man to hold a job?" "Can an 'inferior' student hold a job?" "What are the requirements for good relationships between fellow-workers and employers?" "What kind of school work can I do that will prepare me for a job?" "Should I go to college?" "What is personality and how can it be developed?" "What is self-confidence and how can it be developed?" The points brought out in these conferences were then emphasized in connection with the work assigned. The first results noticed from these conferences were improvements in work habits and attitudes of these N.Y.A. boys and girls. They began to develop dependability and capacity to carry responsibility. The effect of this type of motivation could readily be seen in the daily tasks which they performed. Many of them im-

proved greatly as workers, and most of them improved in their scholastic records. These and many other evidences of good results from this type of education of part-time workers point to the conclusion that the N.Y.A. program may be made one of the biggest opportunities that the schools have had for giving real training in vocational readiness.

It is frequently stated that high schools need a new type of education especially suitable for the non-college group. Work experience and training in desirable attitudes, motivated by the N.Y.A. pay check, may offer a partial solution of this problem.

THE SECOND ISSUE

The second issue, "Shall the N.Y.A. program in high schools be on a work basis, a non-work basis, or both?" has been largely answered in considering the values to be derived from the N.Y.A. program, since most of these values are dependent on the program's being on a work basis. Of course, if the high-school principal is too busy to give the N.Y.A. any attention and if he has all pupils report to the janitors to wash walls or to scrub floors (which are usually scrubbed with a scrubbing machine) for five hours on Saturday morning, hoping thereby to eliminate all except those "who can take it," few of the values discussed herein can be realized, and the program in such a school might as well be on a non-work basis. Such instances, it is believed, are not common and do not represent the philosophy or the practice of most educators. The writer believes, therefore, that to place the N.Y.A. on a non-work basis would result in a distinct loss in the value of the program.

REALIZING THE VALUES

If the values which may accrue to the N.Y.A. program are to be realized, a number of things are obvious. In the first place, if the N.Y.A. is to be effective in the schools in which it is operative, it must be directed by responsible school officials who have sufficient time and interest to get the best out of the program. In larger high schools vocational counselors might well be assigned to do this work. In no case should direction be delegated to the janitorial staff or the clerical force. The following quotation taken from a report of the work of the N.Y.A. supports this position.

So far as can be discovered, youth on the school-aid program are less carefully selected, less well supervised, and less consistently followed up than are the older youth on the college program. This is especially true of the smaller schools where the supervision of the student-aid program has been included among the duties of administrators or teachers who have been unable to give the program the essential supervision it requires.¹

In the second place, the N.Y.A. program in every school system of any size needs an official supervisor. The N.Y.A. officials employed by the state can render a real service to the efficiency of the program if they can succeed in "selling" boards of education as well as school administrators on this point of view, especially since many boards of education are practically unaware of the existence of the N.Y.A. program.

It is obvious also that, in order to get the N.Y.A. program into action as an emergency measure, policies were necessarily formulated, rules made, and regulations promulgated from the top down. Now that the program is well under way, arrangements should be made for more "getting-together" on the part of N.Y.A. officials and school officials. The leadership in this desirable development will have to come from the N.Y.A. organization.

It is also evident that the possibilities of using the N.Y.A. program to aid in vocational guidance and training should be impressed upon those working in the vocational field. The almost entire absence in the literature of vocational education of articles having to do with the N.Y.A. would seem to indicate the need for this emphasis. If vocational training and guidance in the strictest sense are not aided greatly by the N.Y.A. program, at least the opportunities should be used for developing desirable attitudes toward work and toward the relations of workers, employers, and industry. Since the development of character traits, such as honesty, faithfulness, thoroughness, trustworthiness, dependability, and reliability, can be motivated to a high degree under this program, it should be used to the fullest extent toward this accomplishment. This procedure in itself will produce a vocational readiness the importance of which can hardly be overemphasized.

¹ Palmer O. Johnson and Oswald L. Harvey, *The National Youth Administration*, pp. 42-43. Advisory Committee on Education, Staff Study No. 13. Washington: Government Printing Office, 1938.

The following statements were made primarily about the work of the N.Y.A. with out-of-school youth.

Although the nominal aim of the National Youth Administration has been to serve as a relief agency, it has actually fulfilled an educational function as well.¹

In actual operation the National Youth Administration has transcended the immediate problem of relief and has ventured, with considerable success, into educational and employment fields which might have been deemed entirely outside of its province.²

Is there any reason why those of us who are directing the program with in-school youth should not make our contribution to the solution of the youth problem by utilizing to the highest degree the opportunities which have been placed at our disposal? Is there any reason why we should hesitate to accept the \$9,800,000 allocated for the N.Y.A. program in the high school with a determination to see that real values are obtained from its distribution to the 250,000 or more boys and girls who will receive the aid? Do we want these adolescents to become accustomed to thinking of the dole system as a fitting and proper solution for all their future economic problems?

The issues are clear. Although high-school principals and teachers are in no way responsible for the inception of the N.Y.A. program, they are completely responsible for seeing that it is used and administered with the best results. They may even determine whether it shall be continued. They have been made trustees of the heritage of an economically submerged portion of American youth. They can waste its substance, let it slip from their grasp, or pauperize its recipients; or they can take the responsibility which has been placed upon them as a sacred trust and administer it honestly and sincerely as true guardians, helping at the same time to promote in their wards that civic and economic efficiency which is so necessary to the continued progress and security of this country. Surely there can be no serious question about which of these courses these educators will pursue.

¹ Palmer O. Johnson and Oswald L. Harvey, *op. cit.*, p. 88.

² *Ibid.*, p. 21.

GRAMMAR AND THOUGHT APPROACHES IN IMPROVING SENTENCE STRUCTURE

ELLEN FROGNER
Chicago Teachers College

*

How to develop in boys and girls the ability to express ideas in clear, accurate, and effective sentences is a problem encountered by teachers of English. Whether the study of grammar is the most efficient method of achieving this purpose has been given little scientific consideration, especially in view of the amount of time spent on grammar, the persistency of errors in sentence structure as revealed in investigations, and the importance of the structure of sentences in determining to a marked degree the quality of the composition. The paucity of the facts stands out all the more when consideration is given to the recurring statement that the primary purpose in the study of grammar is mastery of the sentence.

PURPOSE OF THE STUDY

In order to contribute evidence toward the solution of the problem, the writer aimed to discover through an experimental approach the relative effectiveness of two methods in the teaching of many specific items of sentence structure: (1) a grammar method, with stress placed on grammatical concepts and principles, combined with attention to thought, and (2) a thought method, with the emphasis centered entirely on the expression of ideas and with no teaching of grammar whatsoever. It was the intention that the grammar method used in the experiment should represent the best of its type. Pupils did not simply classify, label, or analyze; on the contrary, they applied their knowledge of grammar in expressing ideas. Thus it is apparent that some of the thought approach was included in the grammar classes. No grammar, however, was used in the classes taught by the thought method, where the essential principles were accuracy, clarity, and effectiveness of statement.

An example from a unit dealing with the subordination of ideas reveals somewhat more clearly the difference between the two methods. Pupils in both the grammar and the thought classes were shown by illustrative sentences how exactness in statement is achieved through proper subordination. They practiced combining thoughts expressed in short, choppy sentences or in sentences of the long, rambling type; and, in doing so, they worked not only for accuracy but also for variety in expression. They noted common errors and corrected them. Where, then, was the difference between the two methods? Assume that a pupil was confronted with the following common type of awkward sentence: "The students made the money during the music festival that was used to buy instruments for the band." A pupil using the thought approach would reason thus: "The writer means to say that the *money*, not the *music festival*, was used to buy instruments for the band; therefore the sentence needs rewording for more exact statement." On the other hand, a pupil using the grammar method would point out that failure to express the thought accurately resulted from the improper position of the adjective clause in relation to the noun which it logically modifies. He had already been drilled on the points basic to the understanding of the adjective clause, namely, the ability to recognize subjects and predicates, relative pronouns, and adjectives, and the ability to distinguish between subordinate and co-ordinate clauses. This illustration of one of the points taught in the experiment makes clear that knowledge of grammar constituted the difference between the two approaches.

The methods were compared in the teaching of the following seven units, organized from the many items listed after an analysis of difficulties in sentence structure which had been revealed in sixteen investigations of errors and after a survey of present practice as shown in eight recognized courses of study and twenty-four textbooks: (1) co-ordination and subordination of ideas in clauses, (2) subordination of ideas in phrases, (3) recognition of the sentence, (4) reference of the pronoun, (5) sequence of tenses, (6) parallel construction, and (7) omissions. Three references—*Current English*

Usage,¹ Curme's *Syntax*,² and Krapp's *A Comprehensive Guide to Good English*³—were consulted for standards of usage in connection with the items.

Besides the main purpose of testing the effectiveness of the two methods for pupils in Grades IX and XI, the study was also directed toward (1) comparing results for pupils at different levels of intelligence, (2) finding out the amount of time required by each method, and (3) contributing to an understanding of the psychological aspects of language instruction.

CONTROLLING THE EXPERIMENT

The experiment was carried out over approximately a semester's time by a teacher in two ninth-grade classes at South High School in Minneapolis, by another teacher in two eleventh-grade classes in the same school, and by the writer in two ninth-grade and two eleventh-grade classes in the Bemidji (Minnesota) High School. Altogether there were forty-seven pairs of pupils in Grade IX and sixty pairs in Grade XI. Pupils were paired on the following bases: (1) intelligence quotient, as measured by the Terman Group Test of Mental Ability; (2) chronological age; (3) sex; (4) ability in sentence structure, as measured by a general test in sentence structure prepared by the investigator; and (5) exposure to foreign-language study in school. The ninth-grade pupils were not affected by the last factor; in Grade XI twenty-three pairs out of sixty were in foreign-language classes. Table 1, which contains some of the data concerning the pairing of the pupils, shows that in intellectual ability the groups were comparatively representative of the general high-school population.

Table 2 summarizes the results of the initial tests in sentence structure and technical grammar. The general test in sentence structure named in the table was constructed to test ability in all the

¹ Sterling Andrus Leonard, *Current English Usage*. English Monographs, No. 1. Chicago: Published for the National Council of Teachers of English by Inland Press, 1932.

² George O. Curme, *Syntax*. Boston: D. C. Heath & Co., 1931.

³ George Philip Krapp, *A Comprehensive Guide to Good English*. Chicago: Rand McNally & Co., 1927.

items taught during the course of the experiment. It consisted of 114 of the most differentiating questions selected from the tests for the various units. The correlation between the initial and the final forms of the test was found to be $.92 \pm .010$ (based on 100 pupils in Grades X and XII); corrected for attenuation, $.98 \pm .003$. The method used in testing was to have the pupil select the best sentence from a group of five. Also mentioned in Table 2 is a grammar test of 150

TABLE 1
INTELLIGENCE LEVELS AND CHRONOLOGICAL AGES OF GRAMMAR
AND THOUGHT GROUPS IN GRADES IX AND XI

GROUP	GRADE IX				GRADE XI			
	Mean	Standard Deviation	Range	Mean of Individual Differences*	Mean	Standard Deviation	Range	Mean of Individual Differences*
Intelligence quotient:								
Grammar.....	105.15	10.56	82-128	-0.36	105.25	8.04	92-128	-0.47
Thought.....	104.79	9.81	82-126		104.78	8.70	90-129	
Chronological age (in months):								
Grammar.....	176.81	7.68	166-201	-1.09	195.53	7.90	173-218	-0.31
Thought.....	175.72	7.11	163-197		195.22	7.85	172-216	

* The differences preceded by minus signs are in favor of the grammar group; any with no signs are in favor of the thought group. None of the differences between the two groups is statistically significant or closely approaches significance.

points, which the writer constructed in order to measure knowledge of the grammatical facts involved in the items of sentence structure covered during the time of the experiment. The correlation between the initial and the final forms was found to be $.92 \pm .009$, based on 146 pupils in Grades VIII, IX, and XI.

Besides the pairing of the pupils, the following procedures also contributed toward controlling the experiment: (1) detailed descriptions of the two methods for each of the items in sentence structure, which were furnished to the teachers co-operating; (2) uniform tests and exercises, with additional exercises in grammar to be used only in classes taught according to that method; (3) a time-allotment

TABLE 2

RESULTS OF INITIAL TESTS IN SENTENCE STRUCTURE AND GRAMMAR
FOR GRAMMAR AND THOUGHT GROUPS IN GRADES IX AND XI

TEST AND GROUP	GRADE IX				GRADE XI			
	Mean	Standard Deviation	Range	Mean of Individual Differences*	Mean	Standard Deviation	Range	Mean of Individual Differences
Tests in Sentence Structure								
General test in sentence structure (114 points):								
Grammar.....	47.44	14.95	17-80	-0.12	69.45	16.65	30-102	-1.17†
Thought.....	47.32	14.40	22-80		68.28	17.15	34-105	
O'Rourke Survey Test of English Usage, Form P, Part I (14 points):								
Grammar.....	8.83	2.16	4-13	0.08	10.82	2.00	5- 14	-0.45
Thought.....	8.91	1.81	5-13		10.37	2.19	4- 14	
Nelson's High School English Test, Part II (60 points):								
Grammar.....	34.86	5.08	25-46	0.11	42.00	6.64	30- 56	-4.11†
Thought.....	34.97	5.84	17-45		37.89	6.32	14- 49	
Tests of Grammar								
Grammar test (150 points):								
Grammar.....	33.47	16.30	6-78	1.27	84.28	24.86	28-133	-6.75†
Thought.....	34.74	18.75	5-81		77.53	28.46	25-132	
Nelson's High School English Test, Part III (60 points):								
Grammar.....	31.66	8.37	12-52	1.93	39.13	9.69	16- 56	-0.72
Thought.....	33.59	8.79	10-50		38.41	9.90	18- 60	

* The differences preceded by minus signs are in favor of the grammar group; those with no signs are in favor of the thought group.

† The differences marked with daggers are statistically significant.

schedule, to be followed as closely as possible; and (4) in the writer's groups, a daily record of the work in each class, showing the number of minutes spent on sentence structure and the amount of time spent on other activities. In addition, stenographic reports were made of representative lessons illustrating the two methods in the teaching of each unit.

RESULTS

The results are based on three general tests of sentence structure, tests for each of the seven units, and two tests of knowledge of technical grammar. Comparisons were made of the various groups and also of the individual pairs.

Results of tests covering the work of the entire experiment.—Tables 3 and 4 contain evidence concerning the final scores and the gains made in the tests of sentence structure. All the differences for the total of each grade favor the pupils in the thought classes, two of the differences being statistically significant and two closely approaching significance.¹

If to the total for each grade are added the comparisons of the respective classes in each of the two schools, there are eighteen differences in the results for the tests of sentence structure covering the work of the semester. In summary of these differences, the following facts are evidenced: (1) In the final scores, only one difference out of the eighteen possibilities favored the grammar classes. Two of the seventeen differences favoring the pupils in the thought groups satisfied the test of statistical significance; one closely approached significance. (2) All the eighteen differences in gains favored the classes taught according to the thought method. Three of these differences

¹ Throughout the study the writer used "Student's" method for determining the significance of a difference between matched groups (Mordecai Ezekiel, "Student's Method for Measuring the Significance of a Difference between Matched Groups," *Journal of Educational Psychology*, XXIII [September, 1932], 446-50) and Fisher's "t" table of probability for interpreting the significance of the difference (R. A. Fisher, *Statistical Methods for Research Workers*. Edinburgh, Scotland: Oliver & Boyd, 1936). Wherever the difference is considered statistically significant, the probability that the obtained "t" (the ratio between the difference and its standard error) will differ from the true "t," owing to errors of random sampling, is one or less in one hundred. Wherever the difference is spoken of as closely approaching statistical significance, the probability is between two and five in one hundred.

were statistically significant; two were close to being statistically significant.

The comparison of the gains made by the individual pairs on the three general tests of sentence structure revealed the same tendency as did the comparison of the groups. The number of pupils in the thought classes who surpassed their mates was higher in fifteen out

TABLE 3
FINAL SCORES IN TESTS OF SENTENCE STRUCTURE MADE BY GRAMMAR
AND THOUGHT GROUPS IN GRADES IX AND XI

TEST AND GROUP	GRADE IX			GRADE XI		
	Mean	Standard Deviation	Range	Mean	Standard Deviation	Range
General test in sentence structure (114 points):						
Grammar.....	76.59	21.85	28-111	97.23	11.97	65-114
Thought.....	79.13	18.75	41-108	98.50	11.97	68-114
O'Rourke Survey Test of English Usage, Form P, Part I (14 points):						
Grammar.....	10.17	2.24	6-14	12.10	1.70	5-14
Thought.....	10.49	2.36	5-14	12.23	1.75	8-14
Nelson's High School English Test, Part II (60 points):						
Grammar.....	33.40	5.18	23-44	41.94	5.11	28-53
Thought.....	38.08	3.81	31-46	43.05	4.85	32-55

of the eighteen possibilities, while, in average number of points of surpassing, pupils in the thought classes exceeded their mates in twelve of the possibilities.

Two tests of grammar were also given at the beginning and the end of the experiment for the purpose of studying the effect that knowledge of grammar has on ability in sentence structure. One of the tests used, the grammar test of 150 points, was concerned with grammatical principles related to sentence structure, while the other, a division of Nelson's High School English Test, dealt principally with parts of speech. Results for the twelve possible differences in the tests of grammar can be summarized as follows: (1) In final

scores, all the differences favored the grammar groups. Seven of the twelve possible differences satisfied the test of statistical significance, and one closely approached significance. (2) All the differences in gains were in favor of the grammar classes. Five of the twelve differences were statistically significant, and four closely approached

TABLE 4
DIFFERENCES AND SIGNIFICANCE OF DIFFERENCES IN FINAL SCORES
AND IN GAINS MADE ON TESTS OF SENTENCE STRUCTURE BY
GRAMMAR AND THOUGHT GROUPS IN GRADES IX AND XI

TEST AND SCORE	GRADE IX			GRADE XI		
	Mean of Individual Differences*	Standard Error of Difference	Diff. S.E. diff.	Mean of Individual Differences*	Standard Error of Difference	Diff. S.E. diff.
General test in sentence structure:						
Final score.....	2.54	2.07	1.23	1.27	1.00	1.27
Gain.....	2.66	2.07	1.29	2.44†	1.09	2.23†
O'Rourke Survey Test of English Usage, Form P, Part I:						
Final score.....	.32	.36	.89	.13	.22	.59
Gain.....	.24	.48	.50	.58	.35	1.66
Nelson's High School English Test, Part II:						
Final score.....	2.68†	.96	2.79†	1.11	.84	1.32
Gain.....	2.57†	1.26	2.04†	5.22†	1.18	4.42†

* All these differences are in favor of the thought group.

† The differences marked with daggers are statistically significant or closely approach significance

significance. The comparison of the gains made by the individual pairs evidenced a like superiority on the part of pupils in the grammar classes.

Results of the grammar test of 150 points are particularly interesting, since this test was prepared in order to measure knowledge of grammar involved in the items of sentence structure taught during the semester. Table 5 shows that the difference favoring the grammar groups in the total of each grade is statistically significant in every instance. Most assuredly can it be said, then, that pupils who

had been taught the items of sentence structure according to the grammar method knew more about the grammatical principles involved in the items than did the pupils who had been taught the same material according to the thought method, when measured on a test based on those principles. Since the possibility of contacts with grammar in other courses—that is, in foreign-language classes—was controlled, the results should support the assumption on which the experiment was based: that there is a difference between the two

TABLE 5
DIFFERENCES AND SIGNIFICANCE OF DIFFERENCES IN FINAL
SCORES AND IN GAINS MADE ON GRAMMAR TEST BY GRAM-
MAR AND THOUGHT GROUPS IN GRADES IX AND XI

Grade	Mean of Individual Differences*	Standard Error of Difference	Diff. S.E.-diff.
Final score:			
Grade IX.....	-34.29	4.71	7.28
Grade XI.....	-24.48	3.64	6.73
Gain:			
Grade IX.....	-35.57	4.37	8.14
Grade XI.....	-17.73	3.30	5.37

* The differences preceded by minus signs are in favor of the grammar group. All these differences are statistically significant.

approaches to the teaching of sentence structure and that this difference lies in knowledge of grammar.

If an understanding of grammar affects usage, then a similar superiority in ability in sentence structure may rightfully be expected, and all the more so when it is considered that the grammar taught was constantly applied to the expression of ideas in sentences. It is remembered, however, that the results in tests of sentence structure covering the work of the entire experiment favored the classes taught according to the thought method.

Preliminary and final tests for each unit.—After trying out many questions, the writer constructed preliminary and final tests of twenty-five points each, which were used to compare the effectiveness of the two methods in the respective seven units in sentence

structure.¹ The specific comparisons can be summarized by saying that, in general, neither method is favored. The number of pupils in the thought classes who surpassed their mates in gains made on the unit tests was higher in 40 per cent of the possibilities, whereas the number of the same pupils who surpassed their mates in gains made on tests of sentence structure covering the work of the entire experiment was higher in 83 per cent of the possibilities. As a whole the evidence indicates that, while the grammar method results in immediate gains on the part of some of the pupils, yet, in tests covering a larger number of items over a longer period of time, the advantage of the thought approach is seen in better retention.

Results according to intelligence levels.—Results of the general test in sentence structure were considered according to the intelligence levels of the pupils. An examination of the data for Grades IX and XI indicated an upper group with intelligence quotients of 105 and above, and a lower group with intelligence quotients of 104 and below, to be as logical a division as possible in each case. In Grade XI, where there were more pairs, results were computed for three levels of intelligence, as well as for two.

It is evident from the data on the gains made, which are presented in Table 6, that, for pupils with intelligence quotients of 105 and above, there is little difference in the results for either method, while for pupils with intelligence quotients below 105 there is a marked superiority for the thought approach. The differences in gains favoring pupils in the thought groups with intelligence quotients below 105 closely approach statistical significance. Comparisons of gains made by the individual pairs and the group results for the final scores substantiate the figures found in Table 6.

The study, therefore, makes a contribution to the problem of finding methods adapted to the pupils of lower levels of intelligence who are entering the high schools today in greater numbers than formerly. The results also disprove the statement frequently heard that, while brighter pupils may not need grammar, pupils of a lower level

¹ Measures of reliability computed for these tests were found to be substantially high. Based on more than a hundred cases, the correlations between the two forms of the tests for the respective units range from $.76 \pm .024$ to $.86 \pm .013$; corrected for attenuation, from $.92 \pm .007$ to $.98 \pm .002$.

of intelligence need it as a tool in correcting language errors. Neither do the results justify the assertion that, since pupils of higher intelligence are better able to reason abstractly, they should be taught grammar. That they profited more than did the pupils of a lower intellectual ability from the instruction in grammar is brought out in the results, but there is no evidence that the pupils of superior intelligence in the grammar classes profited more than pupils of like

TABLE 6
DIFFERENCES AND SIGNIFICANCE OF DIFFERENCES IN GAINS MADE ON
GENERAL TEST IN SENTENCE STRUCTURE BY PUPILS GROUPED
ACCORDING TO INTELLIGENCE QUOTIENT

Intelligence-Quotient Group	Number of Pairs	Mean of Individual Differences*	Standard Error of Difference	Diff. S.E.-diff.
Grade IX:				
Upper (I.Q. 105-28)....	23	-1.00	2.94	0.34
Lower (I.Q. 82-104)....	24	6.17†	2.78	2.22†
Grade XI:				
Upper (I.Q. 105-29)....	27	.92	1.38	.67
Lower (I.Q. 90-104)....	33	3.67†	1.60	2.29†
Grade XI:				
Upper (I.Q. 114-29)....	11	1.64	1.44	1.14
Middle (I.Q. 99-113)....	35	1.40	1.57	.89
Lower (I.Q. 90-98)....	14	5.64†	2.12	2.66†

* The differences preceded by minus signs are in favor of the grammar group; those with no signs are in favor of the thought group.

† The differences marked with daggers closely approach statistical significance. In the case of the lowest of the three groups in Grade XI, the probability is between one and two in one hundred.

ability taught according to the thought method. In fact, there was some tendency for pupils in the highest intelligence-quotient group (114-29) to profit more from the thought method than from the grammar. Table 6 shows the results in *gains* made by the pupils with an intelligence-quotient range of 114-29. In *final scores* for these pupils the mean of the individual differences was 1.36 in favor of the thought group; the difference divided by its standard error, 1.92.

Time required for each method.—A daily record of the number of minutes spent on sentence structure indicated that the thought approach required approximately 80 per cent of the time required by

the grammar method. Thus the equivalent of one day a week could be saved by the use of the thought approach.

A study of the reasoning in the responses.—The pupils who finished the final form of the general test in sentence structure before the rest of the class were requested to explain their choice of what they considered to be the best sentence in each of the first five questions of the test. The responses were tabulated according to whether the explanation showed the reasoning to be of a predominantly grammatical character, a thought character, a combination of the two, or no method in particular. Following are illustrations from the pupils' explanations:

Grammatical approach entirely.—I chose *B* because it does not have a participle modifying a whole clause.

Thought approach entirely.—*B* is the best because it hangs together the best. "Reads" and "keeps" are parallel in statement. The other sentences are more loose, and the last idea in each sounds tacked on.

No method shown in the reasoning.—It has good sentence structure.

The tabulation of the types of reasoning used revealed that pupils in the thought classes whose explanations evidenced a method reasoned predominantly according to thought (eleven out of thirteen explanations in Grade IX and twenty out of twenty-seven in Grade XI). In the case of the pupils in the grammar classes whose explanations revealed a specific method of reasoning, several (four out of sixteen in Grade IX and nine out of twenty-five in Grade XI) used pure grammatical reasoning. However, more of these pupils (eight out of sixteen in Grade IX and twelve out of twenty-five in Grade XI) used a combination of grammar and thought. This combination represents the approach to sentence structure used in the grammar classes. It is of interest to note that more of the pupils in the grammar classes made use of the thought aids than of the purely grammatical reasoning.

SUMMARY OF RESULTS

The results of the experiment lead to the following major conclusions: (1) The pupils in the grammar classes definitely learned more grammar than did those in the thought group. (2) In spite of this fact, the thought method brought about superior results in sentence structure, as measured by general tests covering the work of the

semester. (3) Results of unit tests in individual elements of sentence structure given immediately at the close of each unit did not, in general, favor either group. Comparison of these figures with those for the long-time tests at the end of the experiment suggests that, when a test calls for the application of grammatical rules recently learned and practiced, little difference is evident between the grammar and the thought methods but that the thought approach makes for longer retention of the fundamental abilities involved. (4) In both Grades IX and XI the thought method was definitely superior for all pupils with intelligence quotients below 105. There was little difference between the two methods among superior pupils, except for some tendency on the part of those of the highest range of intelligence to profit more from the thought than from the grammar method. (5) The thought approach required approximately 80 per cent of the time required by the grammar method. Thus a saving of the equivalent of one day out of five could be effected by the adoption of this approach. (6) A study of the reasoning used by the pupils revealed that those in the thought classes made use of the thought method predominantly. In the grammar classes more pupils used thought aids along with grammatical reasoning than confined themselves to a strictly grammatical approach.

The study, therefore, contributes evidence toward solving an important problem in which further research needs to be centered, namely, the extent to which ability in language is a result of (1) knowledge of grammar, (2) habit formation and the establishment of patterns of expression, and (3) a realization of the social purpose of language in expressing ideas clearly and effectively.

A COMPARATIVE STUDY OF REGENTS' AND LOCAL EXAMINATIONS IN ENGLISH¹

GEORGE W. NORVELL
New York State Education Department

KENT PEASE
Western Illinois State Teachers College, Macomb, Illinois

★

A SCHOOL examination used for purposes of promotion which is prepared and rated by an agency distinct from the persons who give instruction is a powerful supervisory device. It is such a device regardless of the examiner's recognition of the fact or of his wishes. For example, the examiner in literature may direct the attention of instructors and pupils to the minute and exegetical study of a few of the English classics and a memorization of dates and other facts or toward a broad reading program. The aim of the committee responsible for the preparation of the Regents' examination in English administered in New York State at the end of the high-school period has been to prepare a test which would encourage rather than discourage teachers in presenting a broad and varied program. In the study herein described the problem was: Is the attainment of pupils whose instructors have been guided by neither the Regents' examination nor the New York syllabus in English as fairly appraised by the final Regents' examination as by the local examination prepared by the local teacher and based on the local course of instruction? For the purpose of answering this question the co-operation of five schools in four states (Connecticut, Massachusetts, Missouri, and New Jersey) was secured. Five teachers, all of superior ability, and 130 pupils participated.

The teachers were asked to administer, in addition to the local final examination prepared in each instance by the local instructor and rated by him, a standardized test and the New York State

¹ The authors express their sincere appreciation of the assistance given by Mrs. Ada Y. Franklin in rating the papers of the Regents' examination.

Regents' examination. The last two were sent in sealed packages that remained unopened until the time of the examination. The identity of the standardized test, Form B of the Columbia Research Bureau English Test, remained unknown to teachers until the time of the examination. The order of administration of the tests was the Columbia test, the Regents' examination, and the local examination. That teachers might not be influenced by the other tests in rating the local examination, the rating of the three tests was done in the reverse order.

The Columbia Research Bureau English Test, which is completely objective, is too well known to require description. It was chosen in the belief that it provides a good measure of the attainment of high-school pupils in English and that results secured through using it might fairly be compared with the results secured with the other tests.

The final Regents' English IV Examination of June, 1936, was used. Of the examination's five questions, the first called for the writing of a composition on *one* of fifteen widely varied topics. The second question required ability to read understandingly and to write effectively, by asking for a summary or précis of a 240-word paragraph. The third question presented an objective test of vocabulary. Question 4 offered two options: one part tested knowledge of works of reference commonly found in the school library; the alternative asked the pupil to express in his own words the meanings of several passages of poetry. The final question consisted of three alternative parts. The pupil who chose either *a* or *b* of this question was asked for a discussion of his reading illustrated by references to selections with which he was familiar. The point to note here is that the question did not designate the selections to be discussed but left each pupil free to draw on his personal reading. The third choice *c* tested the breadth of the pupil's reading by presenting forty multiple-choice questions, of which the pupil was asked to answer twenty.

Definite instructions for the rating of the Regents' examination, including a rating scale for the composition, were furnished to teachers. After having been rated locally, the papers were forwarded to Albany, New York, and re-rated by a trained examiner of the

State Education Department. The local examination in each instance was prepared and rated by the teacher, and the questions dealt with phases of English studied by the class.

If the assumption is justified that the Columbia Research Bureau Test gives a fair picture of the average level in English which a group of pupils has reached, then correlations of the scores on the Columbia test achieved by the 130 pupils participating in this study (1) with the scores made by the same pupils on the Regents' examination in English, as scored by a trained examiner, and (2) with the scores of these pupils in the local examination should give significant information for the appraisal of the comparative fairness of the Regents' examination and the local examination. Since the results of the Regents' test were scored both by the local teacher and by a trained examiner, a third correlation was found between the Columbia test scores and the Regents' scores as assigned by the local teachers. The correlations were as follows: Columbia Research Bureau Test and Regents' test (expert rating), $.695 \pm .0304$; Columbia Research Bureau Test and Regents' test (local rating), $.665 \pm .0327$; Columbia Research Bureau Test and local examination, $.424 \pm .0483$.

Another approach to the problem may be made through a graphic distribution of the four sets of scores and the appraisal of the results in the light of the principle that, where data are secured from random sampling, their distribution will take the form of the normal curve. Figure 1 presents the graphs of the four distributions.

The objective scores of the Columbia test and the Regents' scores given by a trained examiner are found to have distributions roughly following the normal curve. The scores of the same pupils on the local examination present a markedly different picture. The graph drops suddenly from a height of thirty-five units to a height of two units. Further, the graph extends but five spaces to the right of the thirty-five-unit column with an area of eighty-seven units. By contrast, the graph extends nine spaces to the left with an area of eight units. The only known special factor relating to the local scores at the point where the graph makes its perpendicular thirty-three-unit break is the fact that this is the dividing line in the local examination between failing and passing. The conclusion seems war-

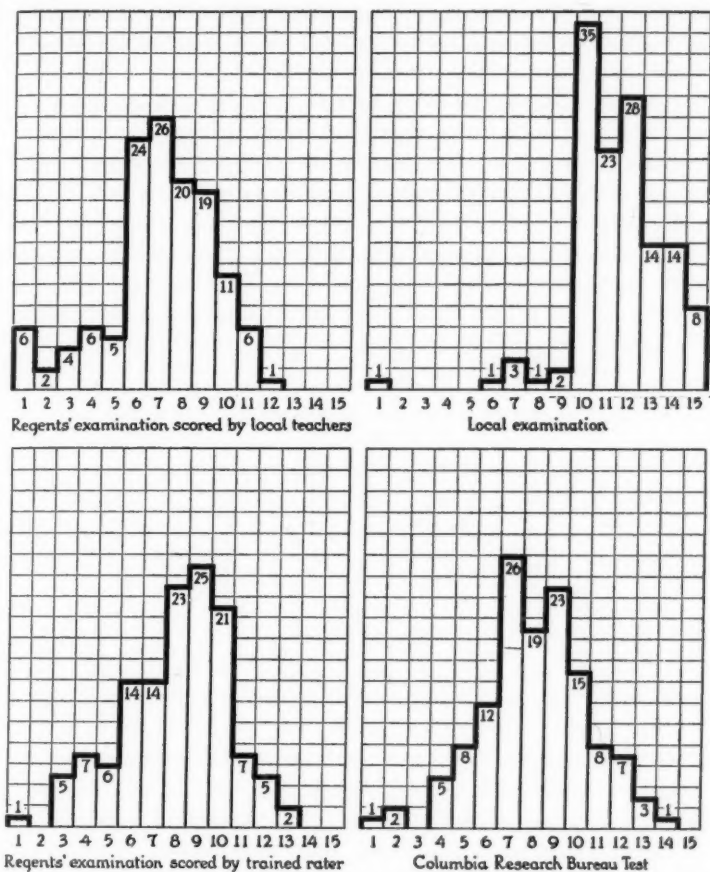


FIG. 1.—Distribution of 130 pupils according to scores on (1) the Regents' English IV Examination scored by local teachers, (2) the local examination, (3) the Regents' examination scored by a trained rater, and (4) the Columbia Research Bureau English Test.

ranted that the local teachers' opinions of which pupils should pass unconsciously led them to give marks of 70-74 to an undue proportion of the papers. This view is strengthened when one notes the distribution of the scores of 65-74, which is shown in Table 1.

It is worth noting also that the distribution of scores on the Regents' examination when assigned by the local teacher presents a graph outline about halfway between the graph based on Regents' scores assigned by a trained rater and the graph of the scores of the local examination. One concludes that again the teachers' opinions of the pupils have led to a skewing of results in spite of the two objective questions on the Regents' paper and the accompanying instructions for rating, including a rating scale for compositions.

TABLE 1
DISTRIBUTION OF PUPILS TO WHOM TEACHERS GAVE SCORES
OF 65-74 ON LOCAL EXAMINATION

Score	Number of Pupils	Score	Number of Pupils
65.....	.....	70.....	10
66.....	.....	71.....	4
67.....	1	72.....	5
68.....	1	73.....	5
69.....	.....	74.....	2

All four of the graphs are skewed in the direction of the higher scores. Why is this skewing, though slight, found in the Columbia test which is completely objective in type and therefore not subject to the bias of personal opinion? A possible answer is that the greater tendency for weaker pupils to drop out of high school, a preponderance of capable pupils remaining, may be expected to result in a corresponding proportion of high marks. Assuming that the Columbia test fairly represents this skewing, additional factors must account for the greater skewing in the other graphs.

In two of the five classes there were no scores below 70 (the passing mark) on the local examination. The distributions of the local examination scores and the Columbia test scores of the forty-eight pupils of these classes are shown in Figure 2.

The evidence of the unreliability of the marks given in the local

examination seems to suggest that, whenever possible, it might be advisable to replace the local examination of the subjective type by standardized tests. As an alternative, a test of objective type, constructed locally, might be used. If for any reason neither of these types of tests can be made available, it would seem more fair to the pupils to give them final scores based solely on a year's or a semester's class work—scores which pupils, teachers, principals, and parents would recognize as being largely subjective in nature—than

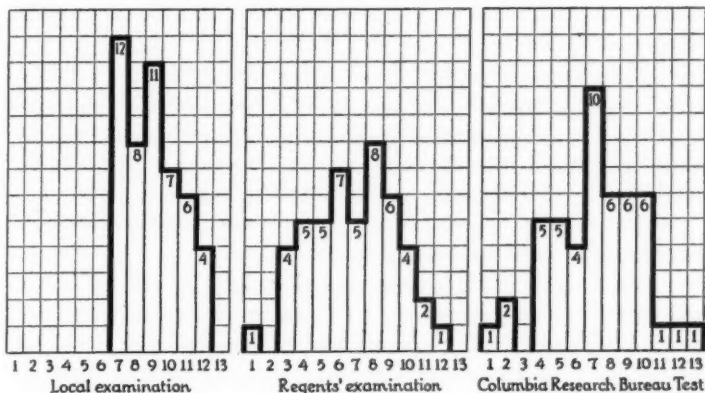


FIG. 2.—Distribution of two classes totaling forty-eight pupils according to scores on (1) the local examination, (2) the Regents' English IV Examination, and (3) the Columbia Research Bureau English Test.

to use a final examination which carries the implication, without the reality, of substantial objectivity.

The question arises: Does the fact that the local examination is of the essay type while the Columbia test is objective invalidate the indicated findings of this study? It seems safe to reply in the negative for the following reasons. (1) The Regents' test scores minus the objective questions still correlate .690 with the Columbia test as compared with .695 when the objective scores are retained. (2) The scores on the first question of the Regents' examination (a composition on a topic chosen by the pupil) correlate $.565 \pm .040$ with the Columbia test, while the scores of the total local examinations containing questions calling for facts as well as composition-writing

correlate with the Columbia test $.424 \pm .048$. (3) The violent skewing of the graph of the local scores strengthens the evidence, which indicates that factors other than the use of an examination of the composition or essay type account for the failure of scores on the local examination to show a higher correlation with the scores on the Columbia test.

CONCLUSIONS

If the Columbia Research Bureau English Test provides a fair measure of attainment by high-school Seniors, the following conclusions seem justified.

1. The Regents' English IV Examination, even when administered to pupils who have not been trained with a view to the taking of this test and when scored by raters without special training, provides a more fair measure of the pupils' attainment than does the local examination prepared and rated by the local teacher.

2. An even fairer assignment of scores is obtained when Regents' papers are rescored by trained examiners.

3. Local teachers are so strongly influenced by their opinions of pupils and by the location of the "passing" mark that the scores which they assign to local, final examination papers do not fairly represent the achievement of pupils. Discontinuance of the local, subjective, final examination would seem desirable. In its place preferably might be substituted a standardized test or a test of an objective type constructed locally. If such tests are not available, the assignment of marks on the basis of pupils' class work might be made by the teacher.

4. The accuracy with which Regents' examinations in English could be rated by both untrained and trained examiners would be increased by adding to the proportion of questions of the objective type.

COUNTY TRAINING SCHOOLS IN ALABAMA

REID E. JACKSON

West Virginia State College, Institute, West Virginia

★

INTRODUCTION

IN 1915, exactly four years after the inception of the county training school movement,¹ the first county training school in the state of Alabama was established at Cottage Grove, in Coosa County.² By the year 1936 the number of these schools had increased to forty-four.³ The important role that the county training school has played in the development of secondary education for the Negro in the southern states, particularly in rural areas, justifies a survey of the institution. Accordingly, this study represents an effort to ascertain the nature and the scope of the county training school movement in Alabama for the year 1936-37. Attention is addressed, in the main, to five aspects of the county training school: (1) form of organization, (2) the objectives, (3) the teaching staff, (4) the educational program, and (5) administrative procedures.

The statistical data for this study were secured from questionnaires circulated among Negro secondary-school principals as a phase in a larger investigation. The information obtained in this manner was supplemented by personal visitation in a few of the county training schools included in the study. Twenty-six schools, with a combined student population of 3,574 and with enrolments ranging from 37 to 387, responded to the questionnaires. Since the schools included in the survey represent 59 per cent of the entire

¹ County training schools were established by the John F. Slater Fund to facilitate the training of Negro teachers for elementary schools and to offer a form of education beyond the elementary grades for rural Negro youth.

² *Annual Report for the Scholastic Year Ending June 30, 1931*, pp. 80-81. Bulletin No. 11, 1932. Montgomery, Alabama: State Department of Education, 1932.

³ *Educational Directory, 1936-1937*, pp. 105-6. Bulletin No. 1, 1937. Montgomery, Alabama: State Department of Education, 1937.

group of county training schools in Alabama, it would seem that these data are adequate as a basis for the generalizations made.

ORGANIZATION AND OBJECTIVES

Grades included.—County training schools in Alabama, according to the data secured from the survey schools, exhibit three major forms of organization. Fifteen, or 57.7 per cent, of the survey schools include Grades VII–XII, while 10 schools, or 38.5 per cent, are organized with Grades VII–IX and X–XII. One of the schools utilizes the form of organization including Grades VII–X. Accordingly, it may be seen that the majority of the county training schools favor the undivided six-year secondary school. The combined junior-senior high school also appears to have many adherents as a desirable pattern of organization. All told, then, one might infer that the movement for reorganized secondary schools, insofar as form of organization is concerned, is making headway among the county training schools in Alabama.

Objectives.—A school, in order to perform an effective educational service, must be guided in all its activities by a clear-cut and definite set of educational objectives. While the writer is not naïve enough to suppose that all educational institutions sponsor educational activities consistent with the educational purposes which they profess, he believes that a knowledge of the proposed objectives is of significance in the appraisal of an educational institution. Consequently, proper authorities in the survey schools were asked to list their educational objectives.

The objectives mentioned four or more times by the 20 schools furnishing data on this point and the percentages of the schools naming these purposes were as follows: "Training for life-needs," 40; "Preparation for college," 35; "Well-rounded development of individuals," 30; "Fitting rural boys and girls to live a more useful life in their respective communities," 20; "Character training," 20. Thirteen other objectives were mentioned by one or two schools each. These figures reveal that the county training schools lay emphasis on "Training for life-needs" as the guiding purpose in their educational program. While this objective is not consistent with the general trend of secondary schools for Negroes in Alabama, which

cater to the traditional college-preparatory aim, it does, in a sense, concur with the generally accepted aims of the county training school movement.¹ However, the county training schools in Alabama assign almost as much importance to "Preparation for college" as they do to "Training for life-needs." Low ranks were given to "Seven cardinal principles of education" and "Knowledge of subject matter." In sum, then, it appears that the county training schools in Alabama are concerned with a practical program of preparation for their prospective graduates, whether it is adequate training for life in a rural society or preparation for a college career.

TEACHING STAFF

Number.—The 26 survey schools employ 186 teachers for 3,574 pupils—a pupil-teacher ratio of 19 to 1. At first thought this ratio might seem incredible in a time when there are said to be too few teachers in relation to the number of pupils enrolled, particularly in Negro schools. The low ratio in this instance is explained by the fact that, in a large number of Negro secondary schools in Alabama, the enrolments are extremely small. That small enrolments among Negro secondary schools are not unusual is noted by Redcay, who states, "Negro schools offering public secondary education are small in size as measured by enrolment."²

Preparation.—Slightly more than half of the teachers in the survey schools, as evidenced by figures in Table 1, hold the Bachelor's degree. Only 26 teachers, or 14.0 per cent, have spent less than two years in college courses. However, only one teacher has achieved the Master's degree, and not a single teacher has been awarded the degree of Doctor of Philosophy. According to data in Table 1, also, the majority of the teachers in the survey schools possess between twenty and thirty-nine semester hours of training in education. The median for this group is twenty-nine semester hours in education.

Experience.—Respondents to the questionnaire were asked to indicate the years of experience of their teachers. Fully half of these teachers, according to the replies, had had no more than three years

¹ Edward E. Redcay, *County Training Schools and Public Secondary Education for Negroes in the South*, pp. 33-37. Washington: John F. Slater Fund, 1935.

² *Ibid.*, p. 60.

TABLE 1

DISTRIBUTION OF TEACHERS IN COUNTY TRAINING SCHOOLS ACCORDING TO (1) LEVEL OF ACADEMIC TRAINING, (2) AMOUNT OF PROFESSIONAL PREPARATION, (3) TEACHING ASSIGNMENT, AND (4) NUMBER OF SUBJECTS TAUGHT

	TEACHERS IN SCHOOLS WITH GRADES VII-X		TEACHERS IN SCHOOLS WITH GRADES VII-XII		TEACHERS IN SCHOOLS WITH GRADES VII-IX AND X-XII		TEACHERS IN ALL SCHOOLS	
	Num-ber	Per Cent	Num-ber	Per Cent	Num-ber	Per Cent	Num-ber	Per Cent
Level of training:								
Less than two years of college.....	2	15.4	18	15.8	6	10.2	26	14.0
Between two and four years of college.....	4	30.8	32	28.1	19	32.2	55	29.6
Bachelor's degree.....	7	53.8	64	56.1	33	55.9	104	55.9
Master's degree.....					1	1.7	1	0.5
Total.....	13	100.0	114	100.0	59	100.0	186	100.0
Semester hours in education:*								
5-9.....	1	16.7	4	4.9			5	3.6
10-19.....	1	16.7	18	22.2	3	5.8	22	15.8
20-29.....	4	66.6	35	43.2	7	13.4	46	33.1
30-39.....			14	17.3	20	55.8	43	30.9
40-49.....			3	3.7	8	15.4	11	7.9
50 or more.....			7	8.7	5	9.6	12	8.7
Total.....	6	100.0	81	100.0	52	100.0	139	100.0
Teaching assignment:								
Major subject.....	3	23.1	73	64.0	30	50.9	106	57.0
Minor subject.....	2	15.4	7	6.1	4	6.8	13	7.0
Major and minor subjects.....	8	61.5	29	25.5	14	23.7	51	27.4
Neither major nor minor subject.....			5	4.4	11	18.6	16	8.6
Total.....	13	100.0	114	100.0	59	100.0	186	100.0
Number of subjects taught:								
One.....	2	15.4	22	19.3	10	16.9	34	18.3
Two.....	1	7.7	14	12.3	15	25.4	30	16.1
Three.....	1	7.7	9	7.9	10	16.9	20	10.8
Four.....	7	53.8	14	12.3	9	15.4	30	16.1
Five or more.....	2	15.4	55	48.2	15	25.4	72	38.7
Total.....	13	100.0	114	100.0	59	100.0	186	100.0

* Data were supplied for only 139 teachers.

of experience. The inference is that there is a rapid turnover in the teaching staffs of the county training schools in Alabama. The causes for this condition might well serve as the subject for an objective investigation. One could conjecture that circumscribed social status, living conditions in the community, size of community, and certification requirements enter into the picture.

Teaching load.—Fifty-seven per cent of the teachers in the survey schools, as shown in Table 1, are teaching in their major fields of subject-matter preparation. The next largest percentage, 27.4 per cent, are giving instruction in subjects that represent a combination of their major and minor areas of concentration. Only a few are teaching subjects for which they have no special preparation. When it comes to the matter of the *number* of subjects taught, however, the picture is not so bright. About 39 per cent of the teachers are forced to handle five or more subjects as compared with 18 per cent who teach only one subject. Approximately two-thirds of the teachers give instruction in three or more subjects. Undoubtedly teaching efficiency is impaired in such strenuous teaching assignments. It appears, then, that the average teacher in the county training school in Alabama is called on to teach too many subjects, of different nature, at one time.

EDUCATIONAL PROGRAM

Nature of curriculums.—The majority of the survey schools, as disclosed in Table 2, employ the curriculum in which all pupils take identical subjects. The curriculum of constants with variables is used in 39 per cent of the survey schools. The majority of the schools indicate an academic emphasis in the curriculum, and only 39 per cent of the schools report a vocational emphasis in their educational programs. This situation seems somewhat of a paradox, especially since county training schools are designed primarily to meet the needs of rural communities.

The subjects offered in three or more schools in each of Grades VII–XII are shown in Table 3. Forty-three different subjects are offered in the county training schools of Alabama. Of this number, nineteen are offered in all six grades, namely, agriculture, art, citizenship, civics, club and home room, economics, English, geography, guidance, health and physical education, history, home economics,

Latin, literature, mathematics, music, physiology, social science, and woodwork. English, health and physical education, general science, literature, and mathematics appear to be the basic subjects in the curriculums of the survey schools. This finding lends credence to the opinion that the county training schools emphasize academic training in their educational programs. Scrutiny of the data included in Table 3 reveals that the principle of election in subject matter operates more widely with the increase in the level of the grade.

TABLE 2
TYPES OF CURRICULUMS AND EMPHASES IN CURRICULUMS
IN 26 COUNTY TRAINING SCHOOLS

	SCHOOLS WITH GRADES VII-X		SCHOOLS WITH GRADES VII-XII		SCHOOLS WITH GRADES VII-IX AND X-XII		ALL SCHOOLS	
	Num-ber	Per Cent	Num-ber	Per Cent	Num-ber	Per Cent	Num-ber	Per Cent
Type of curriculum:								
Prescribed.....	1	100.0	9	60.0	4	40.0	14	53.8
Pure multiple.....	1	100.0					1	3.8
Constants with variables.....			5	33.3	5	50.0	10	38.6
Combination.....	1	100.0					1	3.8
Emphasis in curriculum:								
General education.....	1	100.0	7	46.7	5	50.0	13	50.0
Academic.....	1	100.0	10	66.7	5	50.0	16	61.5
Vocational.....			5	33.3	5	50.0	10	38.5

It is rather surprising to note the comparatively small number of the county training schools which give prominence to agriculture and home economics in their curriculums, when the avowed purposes of the county training school as an educational institution are recalled. The data in Table 3 further indicate a paucity of offerings in the expressive subjects, such as music and fine arts, and the rather scant attention given to the social sciences. With the exception of general science and biology, little or no consideration is given to the physical sciences in the curricular offerings of the survey schools.

All in all, then, the county training schools in Alabama exhibit a tendency to follow the traditional pattern in the organization and the content of their curricular programs, despite the implications in the rather practical aims which are announced for these schools.

TABLE 3
SUBJECTS OFFERED IN GRADES VII-XII BY THREE
OR MORE COUNTY TRAINING SCHOOLS

SUBJECT	NUMBER OF SCHOOLS OFFERING AS—	
	Required Subject	Elective Subject
Grade VII:		
Mathematics.....	26	.....
Health and physical education..	25	.....
English.....	23	.....
Geography.....	23	.....
General science.....	20	.....
History.....	20	.....
Literature.....	20	.....
Social sciences.....	7	1
Agriculture.....	7	.....
Language.....	7	.....
Music.....	6	6
Home economics.....	5	.....
Art.....	3	4
Woodwork.....	3	1
Physiology.....	3	.....
Club and home room.....	2	1
Citizenship.....	1	2
Grade VIII:		
Health and physical education..	26	.....
Mathematics.....	25	.....
English.....	23	.....
Literature.....	20	.....
Geography.....	19	1
General science.....	19	.....
History.....	18	.....
Agriculture.....	9	.....
Home economics.....	9	.....
Music.....	6	5
Language.....	6	1
Social sciences.....	6	1
Art.....	3	3
Civics.....	3	.....
Physiology.....	3	.....
Latin.....	2	2
Club and home room.....	2	1
Woodwork.....	2	1
Citizenship.....	1	2
Grade IX:		
English.....	24	.....
Health and physical education..	24	.....
Mathematics.....	20	.....
Literature.....	19	.....

TABLE 3—Continued

SUBJECT	NUMBER OF SCHOOLS OFFERING AS—	
	Required Subject	Elective Subject
Grade IX—Continued:		
Citizenship.....	15	1
General science.....	15	.....
Home economics.....	11	2
Agriculture.....	11	1
Civics.....	9	.....
History.....	9	.....
Social sciences.....	8	.....
Music.....	7	4
Geography.....	7	.....
Language.....	5	2
Algebra.....	5	1
Art.....	4	5
Woodwork.....	3	1
Latin.....	2	4
Club and home room.....	2	1
French.....	.....	3
Grade X:		
English.....	26	.....
History.....	25	.....
Biology.....	23	1
Health and physical education..	23	.....
Literature.....	20	.....
Algebra.....	18	4
Home economics.....	13	2
Agriculture.....	12	1
Mathematics.....	11	1
Social sciences.....	9	1
French.....	5	1
Music.....	4	4
Art.....	4	1
Club and home room.....	3	1
Language.....	3	.....
Woodwork.....	3	.....
General science.....	2	1
Latin.....	.....	3
Grade XI:		
English.....	23	.....
History.....	21	.....
Health and physical education..	19	.....
Literature.....	18	.....
Physics.....	11	4
Mathematics.....	11	3
Social sciences.....	10	1
Home economics.....	9	4
Agriculture.....	7	1

TABLE 3—Continued

SUBJECT	NUMBER OF SCHOOLS OFFERING AS—	
	Required Subject	Elective Subject
<i>Grade XI—Continued:</i>		
Music.....	4	4
French.....	3	3
Algebra.....	3	
Geometry.....	3	
Language.....	3	
Chemistry.....	2	4
Economics.....	2	1
Citizenship.....	1	2
Club and home room.....	1	2
<i>Grade XII:</i>		
English.....	22	
Health and physical education..	18	
Literature.....	17	
Social sciences.....	12	1
Chemistry.....	11	3
Mathematics.....	9	2
Economics.....	9	1
Agriculture.....	8	1
Home economics.....	7	4
Citizenship.....	7	2
Physics.....	6	1
Elementary sociology.....	6	
Algebra.....	5	4
Music.....	5	4
Club and home room.....	4	1
History.....	4	
Language.....	3	1
Geography.....	3	
Bookkeeping.....	2	1
French.....	1	3
Guidance.....	1	2

Extra-curriculum activities.—Basketball is the ranking extra-curriculum activity in the county training schools of Alabama, closely followed by dramatics. Peculiarly enough, relatively few of the survey schools report football as a major extra-curriculum activity. In the light of the popularity of this sport, the situation might be explained by the existence of limited financial resources to maintain the activity. Other extra-class activities which are sponsored in the survey schools, in the order of their prominence, are: (1) home-economics club, (2) baseball, (3) chorus, (4) tennis, (5) New Farmers of

America, (6) English club, (7) volleyball, (8) literary club, (9) music club, (10) Young Men's Christian Association, (11) Young Women's Christian Association, (12) agricultural club, (13) forum, (14) 4-H Club, (15) science club, (16) art club, (17) library club, and (18) track. Each of fifteen other clubs was mentioned once.

ADMINISTRATIVE PROCEDURES

Administrative functionaries.—Somewhat more than half of the principals in the county training schools are relieved of some of the administrative responsibilities through assistant principals. Other administrative assistants listed by the survey schools, in the order of their prevalence, are: director of athletics, girls' counselor, director of extra-curriculum activities, club sponsors, and director of music. Infrequent mention was made of other administrative personnel. All evidence points to the fact that the principal of the county training school in Alabama, because of a lack of adequate assistance, is forced to forgo the proper discharge of his guidance function in order to complete the routine details involved in his office. Some interest, however, seems to be displayed in the direct supervision of athletics and of general activities of the girl pupils.

Personnel records.—Those personnel factors for which the survey schools record information are shown in Table 4. According to these data, the survey schools are interested most in keeping a record of the scholarship of their pupils. Just about the same concern is expressed in the knowledge of the occupations of the pupils' parents. Endeavor is made to maintain a permanent record of the residence of pupils who have dropped out or been graduated. Coming in for some attention are the factors of health and the occupations of dropouts and graduates. The conditions in the home, likewise, are investigated by a representative number of the survey schools. It is significant to note the limited number of schools recording information with respect to such personnel factors as interests or hobbies, intelligence or psychological scores, pupils' educational and vocational plans, and social history. Such data are decidedly pertinent to the realization of aims in education for a democracy.

Provisions for individual differences.—A majority of the survey schools, as indicated by data in Table 5, attempt to meet individual differences on the part of their pupils through varying the pupil load.

TABLE 4

NUMBERS AND PERCENTAGES OF COUNTY TRAINING SCHOOLS
WHICH RECORD CERTAIN PERSONNEL INFORMATION

INFORMATION RECORDED	SCHOOLS WITH GRADES VII-X		SCHOOLS WITH GRADES VII-XII		SCHOOLS WITH GRADES VII-IX AND X-XII		ALL SCHOOLS	
	Num- ber	Per Cent	Num- ber	Per Cent	Num- ber	Per Cent	Num- ber	Per Cent
Scholarship.....	1	100.0	12	80.0	9	90.0	22	84.6
Occupation of parents.....	1	100.0	12	80.0	8	80.0	21	80.8
Residence of drop-outs and graduates.....	1	100.0	9	60.0	8	80.0	18	69.2
Occupation of drop-outs and graduates.....	1	100.0	9	60.0	6	60.0	16	61.5
Health.....	1	100.0	9	60.0	5	50.0	15	57.7
Personal traits.....	1	100.0	8	53.3	4	40.0	13	50.0
Home conditions.....	1	100.0	6	40.0	4	40.0	11	42.3
Intelligence or psychological scores.....			5	33.3	4	40.0	9	34.6
Educational plans.....			5	33.3	4	40.0	9	34.6
Vocational plans.....	1	100.0	3	20.0	5	50.0	9	34.6
Interests or hobbies.....	1	100.0	4	26.7	3	30.0	8	30.8
Social history.....	1	100.0	1	6.7	1	10.0	3	11.5

TABLE 5

NUMBERS AND PERCENTAGES OF COUNTY TRAINING SCHOOLS REPORTING
PROVISIONS TO MEET INDIVIDUAL DIFFERENCES

PROVISION	SCHOOLS WITH GRADES VII-X		SCHOOLS WITH GRADES VII-XII		SCHOOLS WITH GRADES VII-IX AND X-XII		ALL SCHOOLS	
	Num- ber	Per Cent	Num- ber	Per Cent	Num- ber	Per Cent	Num- ber	Per Cent
Variation in pupil load.....	1	100.0	8	53.3	7	70.0	16	61.5
Out-of-school projects and studies.....	1	100.0	10	66.7	4	40.0	15	57.7
Homogeneous grouping.....	1	100.0	8	53.3	4	40.0	13	50.0
Plans characterized by unit assignment.....	1	100.0	7	46.7	5	50.0	13	50.0
Special classes.....			7	46.7	4	40.0	11	42.3
Scientific study of problem cases.....			8	53.3	2	20.0	10	38.5
Advisory or guidance programs	1	100.0	5	33.3	2	20.0	8	30.8

Another procedure which enjoys popular use is that of "Out-of-school projects and studies." Surprisingly, homogeneous grouping shares third place with "Plans characterized by the unit assignment."

Testing program.—Practically none of the survey schools, according to Table 6, administer prognostic tests to their pupils. As a mat-

TABLE 6
KINDS OF TESTS ADMINISTERED AND USES MADE OF TESTS
BY 26 COUNTY TRAINING SCHOOLS

KINDS OF TESTS AND USES OF TESTS	SCHOOLS WITH GRADES VII-X		SCHOOLS WITH GRADES VII-XII		SCHOOLS WITH GRADES VII-IX AND X-XII		ALL SCHOOLS	
	Num- ber	Per Cent	Num- ber	Per Cent	Num- ber	Per Cent	Num- ber	Per Cent
Kinds of tests used:*								
Achievement.....	1	100.0	14	93.3	8	80.0	23	95.8
Diagnostic.....	1	100.0	9	60.0	7	70.0	17	70.8
Psychological.....	1	100.0	4	26.7	2	20.0	7	29.2
Prognostic.....			2	13.3			2	8.3
Uses made of tests:								
Determine ability of pupils..	1	100.0	12	80.0	6	60.0	19	73.1
Improve teaching.....	1	100.0	10	66.7	8	80.0	19	73.1
Promote pupils.....	1	100.0	13	86.7	5	50.0	19	73.1
Grade pupils.....	1	100.0	12	80.0	4	40.0	17	65.4
Classify, group, place pupils.	1	100.0	11	73.3	5	50.0	17	65.4
Remedial work.....	1	100.0	9	60.0	4	40.0	14	53.8
Diagnose individual differ- ences.....	1	100.0	6	40.0	5	50.0	12	46.2
Assign lessons.....			5	33.3	4	40.0	9	34.6
Assist in vocational guidance			4	26.7	4	40.0	8	30.8
Use as supervisory agency.....			2	13.3	4	40.0	6	23.1
Compare pupils.....	1	100.0	3	20.0			4	15.4
Research.....			1	6.7			1	3.8

* Data on kinds of tests used were not available for two schools.

ter of fact, only seven of the schools employ psychological tests at all. On the other hand, virtually all the survey schools utilize achievement tests. Diagnostic tests, too, receive wide use in these schools.

The uses to which the test results are put are also indicated in Table 6. Occupying first place with equal percentages are determining ability of pupils, improving teaching, and promoting pupils. The data in Table 6 lead to the inference that test results in county training schools in Alabama are used primarily for administrative purposes rather than for improvement of teaching and learning.

DEVELOPMENT OF SCIENTIFIC THINKING THROUGH GENERAL SCIENCE

GLENN M. BLAIR
University of Illinois

MAX R. GOODSON
University High School, University of Illinois

★

ONE of the stated objectives of the teaching of general science in secondary schools is to develop in pupils the habit of scientific thinking, which involves the ability to think clearly and to face problems in an unprejudiced manner. This statement can be verified by examining almost any of the numerous textbooks in this field. For example, Snyder states that one of the aims of general science is "to inculcate in young students the habit of thinking from cause to effect and back from effect to cause."¹ Pieper and Beauchamp give as one of the immediate aims "the developing of an attitude of open-mindedness."²

The present study is concerned with determining whether general science, as usually taught, makes any marked contribution to the realization of this objective. The study further proposes to investigate the influence of the general-science course on the development of scientific thinking when a deliberate attempt is made to foster this type of thinking.

GENERAL PROCEDURE OF THE STUDY

In October, 1938, the following three groups of ninth-grade pupils were tested on Form 1 of Noll's "What Do You Think?" test of scientific thinking: (1) a group taking general science taught by a method which gave specific attention to the development of scientific thinking (experimental group), (2) a group taking general science taught according to usual methods (science control group), and

¹ William H. Snyder, *General Science*, p. iii. Boston: Allyn & Bacon, 1925.

² Charles John Pieper and Wilbur Lee Beauchamp, *Everyday Problems in Science*, p. viii. Chicago: Scott, Foresman & Co., 1933 (revised).

(3) a group not taking general science at all (non-science control group). At the end of the first semester in January, 1939, Form 2 of the Noll test was administered to the three groups just mentioned. At the end of the school year in May, 1939, a retest of the three groups was made by again using Form 1.

The Noll test, the instrument used in this study to evaluate scientific thinking, defines this ability in terms of the following six habits: (1) habit of intellectual honesty, (2) habit of looking for true cause-and-effect relationships, (3) habit of suspended judgment, (4) habit of open-mindedness, (5) habit of criticism, and (6) habit of accuracy. The test comes in two forms, Form 1 and Form 2, each of which is composed of 112 items. Most of these items are statements for which the pupil must answer "T," "F," or "?" depending on whether he believes the statement to be true, false, or debatable. To illustrate the types of statements that are used, some examples are given below:

1. There is no use in working harder than is necessary to get by.
2. A high forehead is a sign of intelligence.
3. Our next president will be a Democrat.
4. Any nation that persecutes the Jews as Germany has done must be totally uncivilized.
5. If one of my teachers says a thing is so, it must be so.

In the present study a revised scoring key was used which is based on the answers given to the questions in Forms 1 and 2 by sixteen leading scientists in the University of Illinois.¹

The experimental group was made up of thirty-two pupils in one of the general-science classes in the University of Illinois High School. This group was taught by special methods for developing scientific thinking. The science control group was composed of forty-nine pupils in two classes in general science, one class from the Champaign, Illinois, public schools and the other from the University of Illinois High School. The teachers of these two classes knew nothing about the experiment but went ahead teaching their classes in the usual way. They agreed to the testing of their pupils on the original test, but they did not know that any subsequent tests would

¹ Glenn M. Blair, "The Validity of the Noll Test of Scientific Thinking," *Journal of Educational Psychology* (in a forthcoming issue).

be given. The non-science group was made up of eighty-nine ninth-grade pupils in the Champaign schools who were not taking general science. These pupils were selected at random from the entire group of ninth-grade pupils who were not enrolled in general-science courses.

INSTRUCTION OF THE GROUPS

Only the experimental group was given any organized work which had for its purpose the engendering of habits of scientific thinking. The other two groups went about their usual activities unaware that they were being used as controls in an experiment.

In the instruction of the experimental group the day-by-day emphasis in the classroom was determined by the following "instructional constants."

1. Many opportunities to think in a scientific manner were afforded the pupils. Such opportunities involved defining a problem in terms of a question to be answered, suggesting hypotheses which tentatively answered the question, testing the hypotheses by performing appropriate operations, and rejecting the hypotheses not supported by facts.

2. Questions such as the following were frequently asked and answered in classroom conversation: "Can you defend that statement, or do you wish to retract it?" "What words or phrases in the statement need careful definitions before one can be certain of the meaning of the statement?" "Is this proposition a hypothesis to be tested, or is it a warranted conclusion?" "How can that hypothesis be tested?"

3. At the end of each unit of instruction opportunity was given the pupils to study a list of statements representative of the subject matter of the unit and to determine whether a statement was a hypothesis or was a conclusion warranted by available facts. The pupils devised operations to determine the validity of the various hypotheses.

Into the context of classroom activity characterized by these three emphases, learning activities were fitted which were designed especially to help the pupils analyze and evaluate other persons' thinking. The pupils were directed to these activities with the hope that

they would learn to make, and would become inclined to make, a critical examination of what lies behind a statement before accepting it. Approximately 180 minutes during the first semester were devoted to the following types of learning activities:

1. After locating the conclusion of the following set of facts, the pupils were required to point out what had to be assumed in making the conclusion.

Van Helmont (1577-1644) regarded water as the material underlying the whole of existence; out of water arises everything on earth. As proof of his theory he cites the results of an experiment. He filled a bowl with 200 pounds of dry earth, and in it planted a willow tree weighing 5 pounds, which he watered regularly with rain water. After 5 years the tree weighed 164 pounds, while the soil, when again dried, weighed 200 pounds less 3 ounces. Thus, he argued, the tree was formed of rain water.

One pupil wrote: "Van Helmont's conclusion was that the tree was made entirely from rain water. He assumed that nothing else (air and soil) around the plant had anything to do with its growth. After performing the experiment, he did not *know* that the tree came from the water. He had to *assume* that it did."

2. The pupils were asked to select a conclusion in their reading which they believed to be important. After reversing it into a question, they were required to outline the steps that they would take in answering it and in arriving at the original conclusion. Thus each pupil had an opportunity to come to the realization that a process of thinking lies behind a conclusion and, furthermore, that the character of a conclusion is necessarily determined by the character of the thinking through which it is derived.

3. The pupils were also required to evaluate an advertisement of their own selection by locating its conclusion, by outlining the argument given to support the conclusion, by making explicit the assumptions on which the conclusion rests, and by selecting words and phrases which require careful definition. One pupil selected a tobacco advertisement, the essential body of which follows.

KEEPS YOU COOL AS A DIP IN A POOL

What's the sense in harboring a heat-wave in your throat! You'll feel fresher, cooler, more like smoking if you switch to X brand! Because of the menthol . . . just the right amount to soothe, but not so much that the good full flavor of the Turkish-Domestic tobaccos is cut into . . .

The pupil wrote that the conclusion is, "Smoke X brand." He outlined the argument, "Keeps you cool as a dip in a pool because of menthol." He said that, to accept the conclusion, one had to assume that menthol has something to do with cooling a throat. Furthermore, he asked that "menthol," "cool as a dip in a pool," and "just the right amount to soothe" be defined.

The teacher of the experimental group did not, at any time during the course of the experiment, have copies of the Noll test, nor was any attempt made to drill the pupils on material of a nature similar to that covered by the tests. The type of procedure which has been described was depended on to bring about the desired improvement in scientific thinking.

RESULTS OF THE EXPERIMENT

The general findings of this investigation are indicated in the accompanying tables. Table 1 shows that the experimental group, which was given special instruction in how to think, during the course of about four months made an average gain on the Noll test of 7.3 points. The science group which had no particular instruction in this respect made a gain of 4.0 points, while the group of ninth-grade pupils who were not enrolled in any science course made a gain of 4.8 points.

As can be seen from Table 1, these respective gains were made by groups which did not make exactly equivalent scores on the initial test (Form 1). It is entirely possible that gains are more difficult to make at some levels of the test than at others. For example, it might be more difficult for pupils who are initially high in scientific thinking to gain, let us say, four points than it would be for pupils who are low to gain the same amount. This difficulty was taken care of by matching the groups according to their scores on the beginning test. For each pupil in the experimental group, a pupil of the same sex was found in the larger non-science group who made the same, or nearly the same, score on Form 1 of the Noll test. Likewise the science control group was matched with an equivalent group of pupils who were not taking general science. A comparison of the gains made by these matched groups was thus made possible. These results are also shown in Table 1. Whereas the experimental group made a gain of 7.3 points, the matched group of non-science pupils made a gain of

only 2.0 points. The science group which was not given any particular training in scientific thinking made a gain of 4.0 points as compared with a similar gain of 4.0 points by the matched group of pupils not enrolled in any science course. In other words, the pupils taking the regular courses in general science did not make any greater gains in scientific thinking, as measured by the Noll test, than did a comparable group of pupils not taking general science. On the other hand, the group of general-science pupils (experimental group)

TABLE 1
GAINS MADE AT END OF FIRST SEMESTER ON NOLL TEST OF SCIENTIFIC
THINKING BY EXPERIMENTAL AND CONTROL GROUPS AND
BY MATCHED PAIRS OF PUPILS IN THE GROUPS

Group	Number of Pupils	Score on Form 1 in October, 1938	Score on Form 2 in January, 1939	Gain
Total group:				
Experimental.....	32	73.0	80.3	7.3
Science control.....	49	76.1	80.1	4.0
Non-science control.....	89	68.1	72.9	4.8
Matched pairs from groups:				
Experimental.....	32	73.0	80.3	7.3
Non-science control.....	32	73.1	75.1	2.0
Science control.....	49	76.1	80.1	4.0
Non-science control.....	49	75.8	79.8	4.0

who were given special exercises for developing habits of accurate thinking gained nearly four times as much in this ability as did the matched group of non-science pupils.

Although the experiment was concluded at the end of the first semester, it was thought wise to give a retest at the end of the year to see if comparable results would be obtained. Form 1 was given to all three groups in May, as had been done in the previous October. The results of this retest are given in Table 2. These data show that the total science control group (the regular class in general science) gained less than the group that did not take science at all. On the other hand, the experimental science group made a marked gain over the group with no science instruction.

The same tendency is found to exist when the groups are matched according to the plan described earlier. The group which was given an opportunity to do scientific thinking in the general-science class (experimental group) gained far more than the non-science control group (7.8 compared with 2.1). However, the group that studied general science in the usual manner made little gain over the group not studying general science at all (3.3 compared with 1.7).

TABLE 2

GAINS MADE AT END OF YEAR ON NOLL TEST OF SCIENTIFIC
THINKING BY EXPERIMENTAL AND CONTROL GROUPS AND
BY MATCHED PAIRS OF PUPILS IN THE GROUPS

Group	Number of Pupils	Score on Form 1 in October, 1938	Score on Form 1 in May, 1939	Gain
Total group:				
Experimental.....	31	73.3	81.1	7.8
Science control.....	47	76.9	80.2	3.3
Non-science control.....	85	68.6	72.8	4.2
Matched pairs from groups:				
Experimental.....	31	73.3	81.1	7.8
Non-science control.....	31	73.0	75.1	2.1
Science control.....	47	76.9	80.2	3.3
Non-science control.....	47	76.8	78.5	1.7

CONCLUSION

The findings of this investigation seem to indicate that the study of general science does not, in and of itself, make a unique contribution to the development of the scientific attitude on the part of ninth-grade pupils. Marked improvement in scientific thinking, however, is secured through the general-science course when special attention is given to obtaining this outcome and when special learning exercises of the type described in this paper are utilized. In a word, then, it appears that the ability to think with open-mindedness and from cause to effect is not something that can be markedly developed by merely taking a course labeled "general science." Such results are secured only when the general-science course provides specific opportunities for training in thinking of this type.

SELECTED REFERENCES ON THE ADMINISTRATION OF SECONDARY EDUCATION

GRAYSON N. KEFAUVER AND AUBREY E. HAAN
Stanford University

*

THE problems of administration of secondary schools are numerous. The more important are included in the list of references presented below. References dealing with the administration of the curriculum, extra-curriculum activities, and guidance may be found in the lists of references carrying the titles referred to in other issues of the *School Review*.

GENERAL¹

542. BELTING, PAUL EVERETT, and CLEVINGER, A. W. *High School at Work*. Chicago: Rand McNally & Co., 1939. Pp. x+442.
A general treatment of secondary-school problems.
543. DOUGLASS, AUBREY A. "Developments in California High Schools," *Educational Record*, XX (January, 1939), 44-59.
A survey of recent developments in California schools. Included are discussions of core courses, subject placement, foreign-language instruction, the function of the junior high school, and vocational education.
544. HARVEY, O. L. "Enrolment Trends and Population Shifts," *Elementary School Journal*, XXXVIII (May, 1938), 655-62.
An analysis of the causes of declining enrolments at the elementary-school level. Includes prediction of trends in elementary and secondary schools.
545. KANDEL, I. L. "Secondary Education," *Educational Forum*, III (May, 1939), 471-87.
Describes the education of the exceptional pupil. Includes discussion of the recent developments in secondary schools of England, France, and Germany.
546. LEONARD, J. PAUL, and WEEKS, HELEN FOSS. *Fundamentals of Secondary Education*. Yonkers-on-Hudson, New York: World Book Co., 1938. Pp. viii+104.
A list of major problems in secondary education, with suggested readings and questions which need to be recognized in the consideration of the topics.

¹ See also Items 477 and 508 (Spaulding) in the list of selected references appearing in the September, 1939, number of the *School Review*.

MARKS AND REPORTS

547. EMBREE, ROYAL B., JR. "The Cumulative-Record Card as an Aid to Research," *School Review*, XLVII (June, 1939), 425-30.
Describes the cumulative-record card used in the University High School, University of Minnesota. The card is particularly designed for use of the guidance staff.
548. HULL, J. D. "Can Marks Be Made Meaningful?" *Bulletin of the Department of Secondary-School Principals*, XXIII (March, 1939), 86-92.
Argues in opposition to the current emphasis on reform of reporting and marking systems.

GROUPING

549. BAKER, G. DERWOOD. "Individualizing Instruction in the Junior High School," *Harvard Educational Review*, VIII (October, 1938), 495-506.
Attacks ability grouping on the basis of intelligence quotient and argues for grouping on a "more socially normal" basis.
550. ENGLE, THELBURN L. "A Study of the Effects of School Acceleration upon the Personality and Social Adjustments of High-School and University Students," *Journal of Educational Psychology*, XXIX (October, 1938), 523-39.
A careful study of the effects of acceleration.
551. FEINGOLD, GUSTAVE A. "Promotional Plans and School Efficiency," *Educational Administration and Supervision*, XXV (March, 1939), 182-90.
Reports the advantages of the annual promotion plan over the semiannual plan. Indicates the effects on scholarship, failures, and school expenditures.
552. MANHEIMER, WALLACE A. "Creating the Functional Class by Continuous Reclassification," *School Review*, XLVI (December, 1938), 763-76.
Discusses the continuous adjustment of class size to subjects, to varying phases of the content in each subject, and to individual differences. Suggests administrative devices for securing flexible class size.

SCHOOL BUILDINGS¹

553. HOLMES, WARREN S. "High School Interiors," *Nation's Schools*, XXIII (January, 1939), 61-63.
Illustrates and describes school interiors designed to create the desirable attitudes and intrinsic interests recognized as aims of modern education.
554. SULLINS, EARL, and PAYNE, J. WIN. "The Ponca City Junior High School," *American School Board Journal*, XCIX (July, 1939), 37-40.
Describes and illustrates the facilities of a new junior high school in Oklahoma.

¹ See also Item 297 (Blair) in the list of selected references appearing in the March, 1939, number of the *School Review*.

PUBLIC RELATIONS

555. "The Detroit Plan of Disseminating Information concerning the Work of the Public Schools," *Elementary School Journal*, XXXVIII (June, 1938), 728-29.
Describes the public-relations activities of the Division of Informational Service of the Detroit public schools.
556. GROCOCK, HARVEY B. "Effective Newspaper Publicity for the High School," *School Review*, XLVII (March, 1939), 205-9.
Indicates that the appointment of a director of publicity for the high school is a step forward in securing effective newspaper publicity for all school activities.
557. GROCOCK, HARVEY B. "Journalistic Standards for High-School Publicity," *School Review*, XLVII (June, 1939), 454-58.
Analyzes good newspaper style and shows how the high-school publicity director can employ it for his own uses.
558. HARDIN, V. M. "A Functional Program of Public Relations," *California Journal of Secondary Education*, XIV (February, 1939), 112-15.
States the objectives of a modern public-relations program.

HOME ROOMS¹

559. BURNS, LUCY T. "Home Rooms and How They Function in Selected Schools," *School Activities*, X (January, 1939), 195-96, 221.
Describes the ways in which home rooms are being used in five cities.
560. JENKINS, LEO W. "Home Room Democracy," *School Activities*, X (November, 1938), 121.
Suggests democratic methods of distributing home-room duties.
561. KLEINFELTER, JOHN J. "Turning the Home Room into a Model Community," *Ohio Schools*, XVII (April, 1939), 168-69.
Discusses techniques for organizing the home room.

LIBRARY AND STUDY HALL

562. GILIER, ROBERT L. "Standards for a Junior College Library," *Junior College Journal*, IX (November, 1938), 68-71.
Sets forth standards for the projected San Francisco Junior College library. Deals with financial administration, book collection, building, and staff.
563. HERRON, MIRIAM. "Ten Year Plan for Libraries," *Nation's Schools*, XXII (September, 1938), 18-22.
Discusses new functions being adopted by the school library and new methods of teaching, involving more efficient use of library facilities.

¹ See also Item 323 (Dixon) in the list of selected references appearing in the April, 1939, number of the *School Review*.

564. LOGASA, HANNAH. *The Study Hall in Junior and Senior High Schools*. New York: Macmillan Co., 1938. Pp. xiv+190.
Indicates the advantages and the disadvantages of several types of study halls. Includes plans for control, organization, and equipment.
565. NEAL, ELIZABETH. "Junior College Libraries in California," *Junior College Journal*, IX (April, 1939), 373-79.
Reports a questionnaire study of junior-college libraries. Includes statements concerning the supply of books, librarian's training, budget, and housing conditions. Adequacies and inadequacies of the libraries are pointed out.
566. SWANSON, A. M. "The Library and Junior College Aims," *Junior College Journal*, IX (January, 1939), 175-78.
A discussion of the contribution of the library to the new evolving junior college.

STAFF

567. ARCHER, CLIFFORD P. "In-service Training of Secondary Teachers in Minnesota," *Bulletin of the Department of Secondary-School Principals*, XXII (November, 1938), 43-48.
Surveys present methods of in-service training and suggests desirable techniques for improving training.
568. DAVIS, HAZEL. "The High School Teacher Thinks about Salaries," *Secondary Education*, VIII (January, 1939), 25-29.
Suggests means of securing careful consideration of the salary question by teachers and community.
569. "The Most Pressing Problems of Principals," *Bulletin of the Department of Secondary-School Principals*, XXIII (May, 1939), 4-28.
A questionnaire distributed by the Committee on Implementation of the Department of Secondary-School Principals indicates what principals consider their most pressing problems.
570. REAVIS, WILLIAM C. "Essential Functions of the Department Head in the Secondary School," *Bulletin of the Department of Secondary-School Principals*, XXIII (April, 1939), 20-24.
Discusses the work of the department head and indicates his relations to teachers, pupils, and administration.
571. SIEDLE, THEODORE A. "The Preparation of High School Teachers," *Educational Administration and Supervision*, XXIV (November, 1938), 609-14.
A discussion of the major trends and needs in teacher education.
572. "Subject Matter Preparation of Secondary School Teachers," *North Central Association Quarterly*, XIII (October, 1938), 193-221.

The papers read by George F. Zook, Karl W. Bigelow, and others at the annual meeting of the North Central Association of Colleges and Secondary Schools. Discusses the implications of the "Final Report" on academic preparation of high-school teachers for administration, arts colleges, certificating bodies, and accrediting agencies.

573. WELLER, GERALD M. "The Role of the Boys' Vice-Principal," *Educational Administration and Supervision*, XXIV (December, 1938), 705-8.

An analysis of the work of the vice-principal in pupil control, pupil-activity direction, instructional supervision, plant management, and community relations.

574. WOELLNER, ROBERT C. "Professional Training Required for an Initial Secondary-School Teacher's Certificate," *School Review*, XLVII (April, 1939), 280-83.

Surveys the trend for the period 1933-38 in number of semester hours of professional training required for certification. Shows increases in number of states requiring definite courses for certification.

CLASS SCHEDULES

575. HUTSON, PERCIVAL W., and KEIFER, JOSEPH C. "Schedules of Junior High School Pupils," *School Review*, XLVI (November, 1938), 667-78.

A study of the daily schedules of pupils in twenty-four junior high schools in Pennsylvania. Concludes that the present variation in the daily schedule should be prevented by reducing the number of subjects.

576. KARSLAKE, JAMES S., and KIRBY, THOMAS J. "Schedule-making Made Easy," *School Review*, XLVI (December, 1938), 754-59.

A detailed description of a method of schedule-making based on preliminary registration. Illustrates special equipment used which serves to eliminate the conflict sheet in schedule-making.

577. LANGFITT, R. EMERSON. *The Daily Schedule and High-School Organization*. New York: Macmillan Co., 1938. Pp. xvi+340.

A comprehensive treatment of the problem of making the daily schedule, including discussion of the factors that should be considered in the preparation of a schedule.

578. MURDOCK, FORREST; SHIPP, FREDERIC T.; and HAND, HAROLD C. "A Schedule That Overcomes Administrative Lag," *California Journal of Secondary Education*, XIII (December, 1938), 493-95.

Describes block scheduling of the English, social-studies, and science courses in Grade X at San Jose, California.

Educational Writings

*

REVIEWS AND BOOK NOTES

FACTORS CONTRIBUTING TO SUCCESS OR FAILURE IN COLLEGE.—College administrators and faculty members are growing more and more concerned about the large percentage of students who fail to make good in their college work. The rapid growth of student personnel services among colleges and universities is one important indication of a desire to do something to remedy the conditions that contribute to academic failure. Personnel officers are discovering, however, that diagnosis of the cause of failure must precede remedial procedures. The simultaneous appearance of a number of studies endeavoring to uncover these causes is heartening to many student advisers who, because of a lack both of techniques for diagnosis and of authoritative information as to the factors contributing to failure, have had to approach their problems by a trial-and-error procedure. *From School to College*¹ and *The Failing Student*² present information that will prove exceedingly helpful in understanding both what constitutes success or failure in college and what factors contribute to success or failure.

The first-named volume presents data secured through a carefully organized study of 3,167 Seniors in 103 co-operating secondary schools and of the members of this group of Seniors who were later registered as Freshmen and Sophomores in 40 co-operating colleges. The information was assembled by a group of carefully selected collaborators, administrative officers, faculty members, and graduate students, who in a preliminary conference agreed on a plan of procedure and developed common techniques to be used in the study. The data were secured through interviews, questionnaires, and standardized objective tests of attitudes and values. The study is, in fact, both intensive and extensive. It includes 137 case studies and comprehensive data derived from records, tests, and questionnaires.

The specific factors identified as bearing on success in college were found to fall in ten areas: health, scholarship, finances, family and home, religion, moral aspects and discipline, personality, social life, living conditions, and outreach.

¹ *From School to College: A Study of the Transition Experience.* Conducted by Lincoln B. Hale, in co-operation with D. W. Bailey, G. H. Menke, D. DeK. Rugh, and G. E. Schlesser. Yale Studies in Religious Education, XI. New Haven, Connecticut: Yale University Press, 1939. Pp. xxiv+446. \$3.50.

² Kenneth L. Heaton and Vivian Weedon, *The Failing Student: A Study of Academic Failure and the Implication for Education.* Chicago: University of Chicago Press, 1939. Pp. x+286. \$2.50.

The importance of this phase of the study lies not so much in the identification of these areas as in the techniques employed to discover the factors underlying student adjustments and in the interpretation through case material and specific illustration of the problems that arise in the transition from high school to college and how young people meet these problems.

It becomes clear from the results of the study that success in college must be thought of in broader terms than academic achievement and that achievement is affected by numerous factors both in the background of the student and in the college situation. The implications of the results of the study for all agencies, both at the secondary-school and the college levels, that have an interest in the welfare and the achievement of the student are effectively presented in the concluding chapter of the volume.

The second volume, *The Failing Student*, is also the product of a co-operative investigation carried on by faculty members and students in four institutions in Michigan: two liberal-arts colleges, a teachers' college, and a land-grant college. This study aimed to identify the factors that underlay the unsatisfactory records of 938 students who were on probation in the four co-operating institutions during, or at the end of, the autumn term or semester of 1937. Students included in this study helped to plan the investigation as well as to carry it out. The study did not attempt to discover what the factors are that contribute to success or failure; rather it attempted to determine what part in the experience of a group of probationary students was actually played by certain factors often presumed to affect academic success. Interestingly enough, the factors considered correspond fairly closely to those identified in the preceding study. Those included in this study were: scholastic aptitude, measured by psychological tests; reading ability; study habits and skills; finances and remunerative work; vocational motivation; health; personal and social factors; and sex. This report, like the one discussed above, is also a combination of case studies and an analysis of group data. The illustrative case materials not only add to the interest of the volume but present clearly and concretely how the various factors affect achievement. The concluding chapter of this volume also presents the implications of the findings for faculty members, administrative officers, and personnel staff members.

Since both volumes present in complete appendixes the forms used in carrying on the studies, as well as most of the original data, it will be possible for other investigators to verify the results and to extend the studies by using the same forms and techniques.

It is worthy of note that the authors of both volumes recognize important limitations, for example, the geographical location of the institutions included, the types of institutions, and the groups of students selected, that have a bearing on their conclusions. It is gratifying, moreover, to observe in studies of this type the employment of techniques that are designed to make the investigations as objective and impersonal as possible.

The reviewer commends these volumes to administrative officers, faculty

members, and counselors at both the secondary-school and the college levels because they present techniques that may be employed for diagnostic purposes, they aid in understanding the problems of students entering colleges from the secondary schools, and they point the way to the development of instructional and guidance procedures that will make for success on the part of many students who each year receive the brand of failure.

A. J. BRUMBAUGH

University of Chicago

FACTOR ANALYSIS MAKES PROGRESS.—The enthusiastic acceptance of factor analysis should not blind us to the fact that it is a relatively new and unproved technique. Since it is evident that basically the same methods may lead to astonishingly different conclusions, there seems still much to be done in studying the technique itself and in making practical applications of it. Holzinger and Swineford have added a work which contributes in both these directions.¹

This compact monograph, in five short chapters, presents the results of a study of a bi-factor method when the same battery of tests and the same form of solution are used for two pupil populations. The chapters deal, in order, with a discussion of the objectives of the study; a detailed exposition of the nature of the groups of children and of the tests used; an analysis of the data, following the plan of the *Student Manual* (Karl J. Holzinger, assisted by Frances Swineford and Harry H. Harman, *Student Manual of Factor Analysis*. Chicago: Statistical Laboratory, Department of Education, University of Chicago, 1937); an estimation of factors; and a study of the effect of adding new factors to the pattern already evaluated.

The major findings, it seems to the reviewer, may be presented by a brief quotation:

While the same pattern plan is appropriate for the same test battery administered to two groups of children, the pattern weights themselves show appreciable variation. . . .

The identical plans of the patterns for the two groups and the variations between the pattern weights together indicate that, generally speaking, the test material determines what factors may be measured by the tests and that the nature of the group tested determines, in large measure, the actual size of the factor weights [p. 39].

The first of these last two conclusions would follow logically from a rigorous theory of validity such as this reviewer has proposed elsewhere ("The Concept of Validity in Mental and Achievement Testing," *Journal of Educational Psychology*, XXV [February, 1934], 81-95). The second ought not to be interpreted apart from the correlations between estimates of factors in each group by regression equations based on the other group. These correlations are very high (p. 49).

¹ Karl J. Holzinger and Frances Swineford, *A Study in Factor Analysis: The Stability of a Bi-factor Solution*. Supplementary Educational Monographs, No. 48. Chicago: Department of Education, University of Chicago, 1939. Pp. xii+92. \$1.00.

The many implications of the discussion interest the reviewer as much as does the demonstration of stability of estimates in spite of differences in loading between groups. Two outstanding questions raised may be discussed here. Holzinger and Swineford state:

All factor analysis is permissive in character in the sense that a great variety of solutions and several variations in method may be employed. The guiding principles that lead to a given method and solution are essentially principles of scientific simplicity and *psychological law* [p. 18, italics not in the original].

Whose psychological law? "Aye, there's the rub," for "accepted psychological principles" are, at best, in great confusion largely because none are generally accepted. If the Gestalt emphasis on insight is legitimate (and the reviewer believes it is), then the general factor must be referable to it. But then what is the status of the group factors unless they can be referred to cerebral division of labor, somatic structures, and other fundamental conditions? More especially, what would happen if this sort of analysis could be invoked to study mental abilities as developmental phenomena, for example, over the entire elementary-school period rather than a single grade? There is nothing sacrosanct about a single grade, and interpretations of mental abilities based on correlations from such a range may be entirely erroneous. Holzinger and Swineford's statement, "For example, a group which is relatively homogeneous in a given factor will have a correspondingly low correlation between that factor and the tests which measure it" (p. 39), bears on this problem. The percentages of variance accounted for by each of the factors—general, spatial, verbal, speed, and memory—which were found for their two groups might be drastically altered over a truly developmental range.

The second problem is precipitated by Tyler's statement in the Foreword regarding what is really the old problem of environment versus inheritance. Writers in the field of mental measurement have frequently failed to differentiate between abilities defined in terms of physiological potential and the observed evidence of the functioning of this potential. Much of the present-day sputtering about the wandering intelligence quotient grows out of this failure. When Miss Wellman found changes in intelligence quotient following different developmental experiences, she found only what must be true if Spearman's "g" is a symbol for insightful potential; yet these changes in intelligence quotient do *not* imply any change whatever in the physiological basis of insight but only differences in opportunity for it to function. The same may be said of the two groups that Holzinger and Swineford used, but it may also be that there were definite physiological differences. This latter point Tyler passes over, and the factor loadings reported by the authors do not prove which it is.

Since Holzinger and Swineford's work brings factor analysis closer to practical application, the reviewer feels impelled to reiterate that a *rapprochement* between neurological and statistical data is sadly needed. If, in addition, the statisticians could put their house of disorder in greater harmony, the reciprocal

contributions of psychological theory and of statistics would be enormously facilitated.

Holzinger and Swineford's report is presented in sober and unassuming language. If anything, it suffers from a paucity of discussion. It adds to Holzinger's well-deserved credit for long and patient work in his chosen field.

A. H. TURNEY

University of Kansas

FINANCIAL SUPPORT FOR EDUCATION IN GERMANY.—The financial difficulties of the German government since the World War have been widely publicized by the press and by the periodicals of this country. There have been occasional reports also of observations of the policies and conditions under which the schools of that nation have operated during this period, but these reports have not provided a full description of the methods and the adequacy of support for public education in the Reich. A recent publication¹ of the University of California Press provides a comprehensive description of the various types of schools and higher institutions under public control in Germany, their sources of financial support, and the governmental regulations which determine their programs and procedures. As such, it is a valuable contribution to the literature of comparative education.

Following an introductory chapter characterizing the scheme of organization of the German educational system under the Weimar Constitution, the author traces the steps by which the present organization and policies have evolved under successive ministries to the establishment of the Third Reich in January, 1933. Throughout this account the fiscal policies and the centralizing tendencies of the national government are depicted as the controlling factors in the shifting aims and methods of educational practice. While the controlling boards of local jurisdictions are still represented in the administrative organization, modifications of their powers have been repeatedly decreed, always in the direction of further centralization of control in the state or federal agency. Such powers as the local board retains under the more recent decrees are vested in the president, the members of the board being reduced virtually to the status of advisers to the president. Similarly, the tendency is for the state to assume an increasing share of the burden of support for the public schools. State aid, as well as local public contributions, is provided by appropriations from the general revenues of the government, there being no such thing as a separate tax for school purposes. Local civil authorities are largely responsible for the financial management of the lower schools, including the administration of funds contributed by the state.

¹ Fletcher Harper Swift, *The Financing of Institutions of Public Instruction in Germany, 1927-1937*. European Policies of Financing Public Educational Institutions, Vol. IV. University of California Publications in Education, Vol. VIII, No. 4. Berkeley, California: University of California Press, 1939. Pp. xviii + (345-694). \$3.00.

The author takes occasion at times to stress the desirable features of the German plan of school support, the implication being that some of the procedures of that plan would provide material relief in difficult situations throughout the United States. The amount of state aid, the pay-as-you-go policy of financing school buildings, state salary schedules, non-contributory pension systems, state-provided homes for teachers, the "official" status, and tenure of members of the profession are noted as advantages of German education over the general pattern of American education.

While these features of the German system, considered separately, are admittedly suggestive of sound financial policies and favorable teaching conditions, they do not serve to establish the whole system of education in that country upon an acceptable level. The limitations set by inadequate school facilities, salary cuts and retentions, high taxes, and the generally depressing economic prospects which are also described in this volume indicate that the outlook for both teachers and pupils in the German schools is, in no sense, attractive.

Many of the facts presented in this report raise serious questions regarding the ultimate contribution of education in Germany to social and intellectual progress. For example, the availability of educational opportunities at the secondary and the higher levels is obviously becoming more and more restricted. The higher institutions and certain secondary schools in earlier periods received substantial revenues from endowments. As these revenues declined under post-war financial conditions, tuition fees were markedly increased. Partly for this reason and partly because of economic pressure in general, the enrolment in secondary schools has steadily declined during the past ten years. Thus, in Prussia the secondary-school pupils constituted 10 per cent of the total enrolment of the lower schools in 1926, but only 6 per cent in 1935. Attendance at higher institutions was highest in 1931 but declined each year to 1936, when the number of students was little more than half the number reported in 1931. Governmental regulations setting up stringent requirements for admission to the higher schools and limiting the number of students to be admitted annually, together with the discouraging occupational outlook for graduates of these schools, are cited as explanations of declining enrolments in higher institutions. Whatever the explanation, the trends are prophetic of a decadent social order. The several flattering features which seem attractive when viewed apart from their settings may serve to mitigate the temporal effects of fundamental deficiencies and restrictive policies, but in the light of present tendencies they cannot promise much for the future of the German people.

NELSON B. HENRY

University of Chicago

A TEXTBOOK FOR JUNIOR TEACHERS.—College supervisors of student teachers are well aware that one of the major problems connected with this important phase of teacher education is that of integrating theory with practice. There are,

of course, many reasons for this difficulty, chief among which, perhaps, is the fact that the student teacher has had his course in principles and methods usually a year or more before he takes the laboratory course in supervised student teaching. Others may be mentioned, such as the indifference of many critic teachers in co-operating public high schools toward problems demonstrating principles and methods. Assuming, properly, that their first duty is to their own high-school classes, they leave the student observer to co-ordinate theory and practice as best he may.

These disturbing factors indicate that there is a definite need and place for a textbook or a handbook to be placed in the hands of critic teachers and student teachers alike, problems assigned by the college supervisor being thus co-ordinated. Recently a book has been published,¹ with an accompanying workbook (which may, however, be used separately), that seems admirably fitted for this role.

Maxwell and Reusser have organized their book into sixteen chapters. Among these the chapters devoted to planning instruction and evaluation of teaching stand out, perhaps, as the most helpful to student teachers. The book as a whole is well organized and sound in viewpoint. However, it would have served its unique function better, in the reviewer's opinion, if it had assumed the proportions of a handbook rather than a textbook. Most student teachers, it may be assumed, have already had a course in principles and general methods; yet they need a summary treatment for ready reference in connection with problems assigned by the supervisor. The book, of course, may serve a double purpose, and that may be the intention of the authors. However, as a book in methods it is not particularly profound; as such, it might justly be described as "just another book in education."

There are, however, some original ideas and much helpful material for both junior and senior teachers. Of the former, perhaps the most arresting is the use of the term "junior teachers" in place of older terms, such as "practice teachers" or "student teachers." The suggested term carries the significant connotation of responsibility which the older and more familiar designations lack. Say the authors, "To be successful, a junior teacher must feel the same responsibility that he would feel if he were taking charge of a school" (p. 24). In line with this responsibility, a good discussion is given of those newer phases of training which involve observation, participation, and practice in extra-curriculum activities and in pupil guidance.

The final evaluation of the book will come from use. Its chief contribution to the field of teacher education is that, with its correlative workbook, it seems to offer aid toward solution of the difficult problem of how to integrate theory and practice in a laboratory course.

R. R. RYDER

Purdue University

¹ C. R. Maxwell and W. C. Reusser, *Observation and Directed Teaching in Secondary Schools*. New York: Prentice-Hall, Inc., 1939. Pp. xiv+434. \$2.00.

GEOGRAPHY MATERIALS FOR THE SECONDARY SCHOOL.—Teachers of social studies in the secondary schools have felt for a number of years that their pupils were weak in an understanding of the geographical influences on men. Not only has this failing been brought to their attention by members of the educational profession who deplore the lack of understanding and information, but it is one of the criticisms raised by lay critics. Many of our tests have shown the lack of information in ordinary place geography. Geographic information and a thorough understanding of the influences of climate, natural resources, location of land areas, and all other natural influences are essential if pupils are to have realistic understandings.

Curricular committees are attempting to solve this problem by enriching the social-studies courses with more geographical materials. A great deal has been done in this direction in the newer textbooks in history. However, good geography textbooks for the secondary-school level are scarce. Those that have been written too often have been prepared with entirely too narrow a point of view and have not explained man's relations to his whole geographical environment. The geography of the world rather than man's intimate relations with it has been the point of departure.

The textbook under consideration¹ is an attempt to organize geographic information for the social-studies pupil in the secondary school. It is a revision of an earlier book by the same authors entitled *The Nations at Work*.

The present volume is an improvement over the earlier book. The new book is divided into nineteen units. The center of the stage is, very properly, set in our Western world. The first unit is an introduction to the general geographical factors that influence man. Units II-X, inclusive, deal with the United States and her possessions. The essential geographic information—physical, industrial, and commercial—is found here. The materials are important and are interestingly presented. The approach is made through man's varied needs and activities. Man's misuse of natural resources and the problems arising from this misuse are made clear.

From the United States the scene is shifted in the next unit to our neighbors, north and south. Europe receives three units, Asia three, Great Britain's island dominions one, and Africa one.

More than four hundred illustrations are included in the book. These are well selected and add much to the book's attractiveness and usefulness. Graphs and small maps are plentiful and useful. The Appendix is made up of large maps and tables of information. The maps are clear and attractive.

The teaching aids at the end of each chapter are confined to a few questions on the text and a few general suggestions for further study. There are no directions to other textbooks nor to other sources. A limited list of references and

¹ Leonard O. Packard, Charles P. Sinnott, and Bruce Overton, *The Nations Today: A Physical, Industrial, and Commercial Geography*. New York: Macmillan Co., 1939. Pp. viii+728. \$2.00.

supplementary materials is included in the Appendix. Like the former volume, the present book suffers from the absence of good teaching and learning aids.

This textbook is not free from some of the defects common to geography textbooks for secondary schools. It is written for no particular grade level. This fault may be laid not to the textbook-writers but to the confusion in curriculum construction, to the lack of agreement on where geography should be taught. The lack of teaching and learning aids has already been mentioned. In many places more intimate connections could have been made between geographical influences and man's imperialistic and economic struggles.

However, the reviewer believes that teachers will find the book valuable as a general textbook or as a supplementary reference in classes in history and modern problems. The book is interesting, attractive, scholarly, and up to date. The emphasis is on the present, active world, described as a genuine stage on which mankind is acting his great drama.

W. FRANCIS ENGLISH

Carrollton High School
Carrollton, Missouri

INTRODUCING YOUTH TO AMERICAN LIFE.—"Social-science" courses in the high school have been far from satisfactory, and the ninth-grade course, often called "community civics," is the least satisfactory of all. Too many are superficial, unrealistic, and lacking in scholarship. Curriculum experiments are going on in this area and should, in time, produce results. The recent volume of Bacon and Krug¹ is directed to the "student in the early years of the high school" (p. vi), although the authors suggest that it might also be used as "a semester course in the eleventh or twelfth grade as a follow-up of a semester's use in the ninth or tenth grade" (p. vii).

The book is divided into seven units. The first, "Our Life in the School," describes the school community, the significance of studies, the history of American education, and the organization and support of schools. The second unit, "Our Life in the Home," tells of the family and its problems. A third unit, "Our Life in the Work of the World," gives a picture of the economic community, youth's adjustment to it, and some of our economic problems. "Our Life in the Local Community" describes local government and problems of justice, finances and taxation, crime, and safety, while "Our Life in State and Nation" deals with government and politics in those areas. The sixth unit, "Our Life in Economic Society," includes chapters on money, distribution, and alternatives to capitalism. The last unit, "Our Life in a Society of Nations," deals with international problems and international co-operation.

This volume is a satisfactory textbook for the ninth-grade course in "community civics," but there is doubt that it will satisfy the teachers of eleventh-

¹ Francis L. Bacon and Edward A. Krug, *Our Life Today: An Introduction to Current Problems*. Boston: Little, Brown & Co., 1939. Pp. xxii+658. \$1.76.

and twelfth-grade courses in "problems." In the later grades the tendency is to dig more deeply into the problems of American life. The book has a decided advantage for use in Grades IX and X, for available textbooks tend to be too simple to challenge these pupils. For ninth-grade pupils the chapters on "How the Schools Are Organized and Supported," "Protecting the American Home," "Paying for Community Services," and "How International Problems Have Developed" should prove stimulating.

Of interest are the graphs and the diagrams which illustrate the problems. It is unfortunate that sources of data for the graphs are often omitted. No photographs appear in the book; their place is taken by ninety-two pen sketches. Over half the sketches are humorous (or frivolous) and add little to the book. Some of them (those on pages 328, 438, and 465, for example) give erroneous ideas.

In the main the book is fair in its treatment of problems. The pros and cons of the New Deal, government regulation, court reform, and co-operatives are well stated. The economic chapters, however, do not do justice to the labor movement. A sketch on page 198 shows laborers wrecking Capital, and the statement about violence and disorder in strikes on page 203 mentions only the acts of strikers. The employers are guilty only of the "use of tear-gas bombs on workers" (p. 202). A suggested committee activity is to collect news items on strikes and labor disputes for a topic to be entitled "The American Labor Scene." A better activity would be the collection of pictures of the working conditions in organized and unorganized industries.

A number of the suggested activities for the pupils direct them to their own communities. Too often these suggestions are to observe and report. More emphasis must be placed in the schools on what Truman Reed calls "creative citizenship," resulting in the type of community improvement described in Paul R. Hanna's *Youth Serves the Community* (New York: D. Appleton-Century Co., Inc., 1936).

This volume will be welcomed by many teachers as "An Introduction to Current Problems" for pupils in the early high-school grades. It should prove interesting and stimulating to the pupils.

JULIAN C. ALDRICH

Webster Groves High School
Webster Groves, Missouri

*

CURRENT PUBLICATIONS RECEIVED

GENERAL EDUCATIONAL METHOD, HISTORY, THEORY AND PRACTICE

BAILEY, EDNA W., LATON, ANITA D., and BISHOP, ELIZABETH L. *Studying Children in School*. New York: McGraw-Hill Book Co., Inc., 1939 (second edition). Pp. viii+182. \$2.00.

BAILEY, FRANCIS L. *A Planned Supply of Teachers for Vermont*. Teachers Col-

- lege Contributions to Education, No. 771. New York: Teachers College, Columbia University, 1939. Pp. vi+88. \$1.60.
- COOKE, DENNIS H. *Administering the Teaching Personnel*. Chicago: Benj. H. Sanborn & Co., 1939. Pp. xiv+348. \$2.40.
- DIX, LESTER. *A Charter for Progressive Education*. New York: Teachers College, Columbia University, 1939. Pp. 108. \$1.60.
- DOBBS, ALMA A. *Teaching Wholesome Living in the Elementary School*. New York: A. S. Barnes & Co., 1939. Pp. xiv+304. \$2.50.
- ESPY, HERBERT G. *The Public Secondary School: A Critical Analysis of Secondary Education in the United States*. Boston: Houghton Mifflin Co., 1939. Pp. xii+596. \$2.80.
- McKEE, PAUL. *Language in the Elementary School: Composition, Spelling, and Writing*. Boston: Houghton Mifflin Co., 1939 (revised). Pp. xii+500. \$2.25.
- ODELL, CHARLES WATERS. *The Secondary School*. Champaign, Illinois: Garrard Press, 1939. Pp. viii+606. \$3.00.
- Reorganizing Secondary Education*. Prepared by V. T. Thayer, Caroline B. Zachry, and Ruth Kotinsky for the Commission on Secondary School Curriculum. New York: D. Appleton-Century Co., Inc., 1939. Pp. xvi+484. \$2.75.
- Science Instruction in Elementary and High-School Grades*. By Members of the Faculty of the Laboratory Schools of the University of Chicago. Publications of the Laboratory Schools, No. 7. Chicago: Department of Education, University of Chicago, 1939. Pp. viii+232. \$1.75.
- STALEY, SEWARD C. *Sports Education: The New Curriculum in Physical Education*. New York: A. S. Barnes & Co., 1939. Pp. viii+326. \$2.50.
- WITTY, PAUL, and KOPEL, DAVID. *Reading and the Educative Process*. Boston: Ginn & Co., 1939. Pp. x+374. \$2.50.

BOOKS PRIMARILY FOR HIGH-SCHOOL TEACHERS AND PUPILS

- ARNOLD, JOSEPH IRVIN, and BANKS, DOROTHY J. *Building Our Life Together: The Essentials of Good Citizenship*. Evanston, Illinois: Row, Peterson & Co., 1939. Pp. 744. \$1.60.
- BEAUCHAMP, WILBUR L., MAYFIELD, JOHN C., and WEST, JOE YOUNG. *Science Problems for the Junior High School*, Book III. Chicago: Scott, Foresman & Co., 1939. Pp. x+756. \$1.68.
- BLISS, SIDNEY M., and ROWE, CLYDE E. *Everyday Law*. Boston: D. C. Heath & Co., 1939. Pp. xii+660. \$1.80.
- DAVIS, ROY. *Exercises in Everyday English*. Boston: Ginn & Co., 1939. Pp. xii+252. \$1.20.
- DULL, CHARLES E. *Modern Physics*. New York: Henry Holt & Co., 1939 (revised). Pp. x+588+xxvi. \$1.80.
- Five Kinds of Writings: Selections from British and American Authors, Old and New*. Edited by Theodore Morrison and the Staff of English A at Harvard University. Boston: Little, Brown & Co., 1939. Pp. xx+658. \$2.50.

- FLETCHER, GUSTAV L. *Laboratory Exercises in Physiography*. Boston: D. C. Heath & Co., 1939. Pp. x+162. \$0.68.
- FORBES, ANITA P., and SMITH, ALBERT S. *Modern Verse*, Book I. New York: Henry Holt & Co., 1939 (revised). Pp. xxii+298. \$0.96.
- Funk & Wagnalls Standard High School Dictionary of the English Language*. Edited by Frank H. Vizetelly and Charles Earle Funk. Evanston, Illinois: Row, Peterson & Co., 1939. Pp. xvi+1008+(xvii-xxxii). \$2.08.
- HART, WALTER W., and JAHN, LORA D. *Mathematics in Action*, Book II. Boston: D. C. Heath & Co., 1939. Pp. x+374. \$0.96.
- Health and Physical Education Class and Record Book*. Prepared by Hugo Fischer. New York: A. S. Barnes & Co., 1939. \$0.50.
- Heath Workbook in General Mathematics*, Book I, 72 lessons; Book II, 72 lessons. Boston: D. C. Heath & Co., 1939. \$0.24 each.
- Interpreting Science: Book I, *Understanding Our Environment* by Franklin B. Carroll, pp. x+438, \$1.48; Book II, *Understanding Our World* by Franklin B. Carroll, pp. xii+554, \$1.56; Book III, *Understanding the Universe* by Franklin B. Carroll, Frank A. Rexford, and Henry T. Weed, pp. xx+712, \$1.68. Philadelphia: John C. Winston Co., 1939.
- L'Anglais tel qu'on le parle par Tristan Bernard et Quelques anecdotes*. Adapted and edited by Otto F. Bond. Heath-Chicago French Series, Book VII. Boston: D. C. Heath & Co., 1939. Pp. iv+58. \$0.32.
- MILLER, WARD S. *Word Wealth*. New York: Henry Holt & Co., 1939. Pp. xviii+344. \$1.20.
- Official Sports Library for Women. *Official Basketball Guide for Women and Girls Containing the Revised Rules, 1939-40*. Edited by Christine White. New York: A. S. Barnes & Co., 1939. Pp. 94. \$0.25.
- OPDYCKE, JOHN B. *Telling Types in Literature*. New York: Macmillan Co., 1939. Pp. x+404. \$1.80.
- OVERTON, BRUCE. *Workbook To Accompany "The Nations Today."* New York: Macmillan Co., 1939. Pp. iv+144. \$0.48.
- PITTARO, JOHN M., and GREEN, ALEXANDER. *Segundo curso de español*. Heath's Modern Language Series. Boston: D. C. Heath & Co., 1939. Pp. xxiv+608. \$1.88.
- Poems of Today: A Collection of the Contemporary Verse of America and Great Britain*. Edited by Alice Cecilia Cooper. Boston: Ginn & Co., 1939 (revised). Pp. xx+412. \$1.20.
- POOLEY, ROBERT C., and WALCOTT, FRED G. *Growth in Reading*, Book II. Chicago: Scott, Foresman & Co., 1939. Pp. 640. \$1.48.
- ROBERTS, HOLLAND; RAND, HELEN; MURPHY, GEORGE; and APPY, NELLIE. *Let's Read! II, Growing Up in Reading*. New York: Henry Holt & Co., 1939. Pp. xiv+536. \$1.28.
- SCOTT, HARRY FLETCHER; HORN, ANNABEL; and GUMMERE, JOHN FLAGG. *Latin Book Three*. Chicago: Scott, Foresman & Co., 1939. Pp. 508. \$1.92.
- SPIELER, JOSEPH. *As I See Me: Helps in Self-Discipline*. Based on J. B. v. Hirscher's *Selbstäusschungen*, English translation and adaptation by T. A.

- Rattler. Milwaukee, Wisconsin: Bruce Publishing Co., 1939. Pp. xii+98. \$1.00.
- Teachers' Lesson Unit Series, No. 102: *Installment Buying* (Junior and Senior High Schools) by Hugh B. Wood, William J. Lowry, and Irwin A. Hammer, New York: Teachers College, Columbia University, 1939. Pp. 28.
- THOMAS, HARRISON C., and HAMM, WILLIAM A. *Modern Europe*. New York: Henry Holt & Co., 1939 (revised). Pp. x+854. \$2.24.
- THOMAS, JEAN, and LEEDER, JOSEPH A. *The Singin' Gatherin': Tunes from the Southern Appalachians*. New York: Silver Burdett Co., 1939. Pp. xii+114. \$2.00.
- Thoreau, *Reporter of the Universe: A Selection of His Writings about Nature, for All Readers from Eight Years Old to Eighty*. Selected and arranged by Bertha Stevens. New York: John Day Co., 1939. Pp. xiv+230. \$2.50.
- WILSON, SHERMAN R., and MULLINS, MARY R. *Applied Chemistry*. New York: Henry Holt & Co., 1939. Pp. xiv+530. \$1.72.

PUBLICATIONS IN PAMPHLET FORM

- ADAMS, THURSTON. *Motion Pictures in Physical Education: Teaching the Tennis Serve with School-made Films*. New York: Teachers College, Columbia University, 1939. Pp. iv+58. \$0.90.
- AGNEW, DONALD C. *The Effect of Varied Amounts of Phonetic Training on Primary Reading*. Duke University Research Studies in Education, No. 5. Durham, North Carolina: Duke University Press, 1939. Pp. viii+50. \$1.00.
- AMIDON, BEULAH. *Jobs after Forty*. Public Affairs Pamphlets, No. 35. New York: Silver Burdett Co., 1939. Pp. 32. \$0.10.
- Broadcast Receivers and Phonographs for Classroom Use*. New York: Committee on Scientific Aids to Learning (41 East Forty-second Street), 1939. Pp. 94.
- Creative Hands and Purposeful Activities in the Elementary School: An Industrial Arts Bulletin*. Bulletin 333. Harrisburg, Pennsylvania: State Department of Public Instruction, 1939. Pp. 62.
- DOLL, EDGAR A. *Your Child Grows Up*. Boston: Life Conservation Service of the John Hancock Mutual Life Insurance Co., 1939. Pp. 32.
- EDUCATIONAL POLICIES COMMISSION. *Educational Policies for Rural America*. Washington: Educational Policies Commission of the National Education Association and the American Association of School Administrators, 1939. Pp. 20.
- Fifty Foreign Films*. Reviewed by Otto F. Bond. Chicago: University of Chicago Press, 1939. Pp. xii+56. \$0.50.
- FULMER, HENRY L. *An Analytical Study of a Rural School Area*. Bulletin 320. Clemson, South Carolina: South Carolina Agricultural Experiment Station of Clemson Agricultural College, 1939. Pp. 70.
- GATES, A. I., BOND, G. L., and RUSSELL, D. H., assisted by Eva Bond, Andrew Halpin, and Kathryn Horan. *Methods of Determining Reading Readiness*. New York: Teachers College, Columbia University, 1939. Pp. 56. \$0.60.

- HOPPOCK, ANNE. *Manual for the Educational Sound Film: Living and Learning in a Rural School*. New York: Teachers College, Columbia University, 1939. Pp. vi+36.
- Institutions of Higher Learning in Relation to a State Program of Teacher Education*. Bulletin 156. Harrisburg, Pennsylvania: State Department of Public Instruction, 1939. Pp. 30.
- International School Correspondence of the Junior Red Cross*. Paris: League of Red Cross Societies, 1939. (Washington: American Red Cross.)
- Language Leaflets: No. 1, "The Study of Modern Foreign Languages" by Sumner Welles; No. 2, "A Blind Spot in Education" by Henry M. Wriston. Washington: National Federation of Modern Language Teachers (H. G. Doyle, % George Washington University), 1939. \$0.10 each.
- MCPHERSON, ORPHA. *Summer Vacation Activities of One Hundred Farm Boys and Girls in a Selected Area*. New York: Teachers College, Columbia University, 1939. Pp. viii+74. \$1.25.
- Occupational Trends in California with Implications for Vocational Education: VI. Trends in Service Occupations—Personal, Business, and Repair*. Bulletin of the California State Department of Education, No. 7. Sacramento, California: State Department of Education, 1939. Pp. xviii+138.
- POTTHOFF, EDWARD F. *Simplifying the Combinations of Subjects Assigned to High School Teachers: A Way to Improved Instruction in the High Schools of Illinois*. University of Illinois Bulletin, Vol. XXXVI, No. 87. Urbana, Illinois: University of Illinois, 1939. Pp. 66.
- Quantitative Aspects of Experiencing in the Elementary School*. Bulletin 360. Harrisburg, Pennsylvania: State Department of Public Instruction, 1939. Pp. viii+222.
- RYAN, W. CARSON. *Studies in Early Graduate Education: The Johns Hopkins, Clark University, The University of Chicago*. Bulletin No. 30. New York: Carnegie Foundation for the Advancement of Teaching, 1939. Pp. viii+168.
- Significant Features of a Modern School: As Seen in the Summer Demonstration School of Teachers College*. Descriptions of Programs by the Demonstration School Staff, Cecile White Flemming (editor). New York: Teachers College, Columbia University, 1939. Pp. 62.
- "A Study of Visual Instruction for the Wood County Schools, Wood County, Ohio." Bowling Green, Ohio: Charles S. Harkness (County Superintendent of Schools). Pp. 132 (mimeographed).
- TAYLOR, WILLIAM SEPTIMUS. *Education in England*. Bulletin of the Bureau of School Service, Vol. XI, No. 4. Lexington, Kentucky: College of Education, University of Kentucky, 1939. Pp. 138. \$0.50.
- TIEGS, ERNEST W. *Syllabus and Laboratory Exercises in Educational Tests, Measurements, and Statistics*. Los Angeles, California: University of Southern California Press, 1939. Pp. 30.

